

Operating/Service Instructions

GARDEN TRACTOR

IMPORTANT

Model No.

143-990

SAFE OPERATION PRACTICES FOR RIDING VEHICLES

1. Know the controls and how to stop quickly—READ THE OWNER'S MANUAL.
2. Do not allow children to operate vehicle. Do not allow adults to operate it without proper instruction.
3. Do not carry passengers. Keep children and pets a safe distance away.
4. Clear work area of objects which might be picked up and thrown.
5. Disengage all attachment clutches and shift into neutral before attempting to start engine (motor).
6. Disengage power to attachment(s) and stop engine (motor) before leaving operator position.
7. Disengage power to attachment(s) and stop engine (motor) before making any repairs or adjustments.
8. Disengage power to attachment(s) when transporting or not in use.
9. Take all possible precautions when leaving vehicle unattended such as disengaging power-take-off, lowering attachments, shifting into neutral, setting parking brake, stopping engine and removing key.
10. Do not stop or start suddenly when going uphill or downhill. Mow up and down face of steep slopes, never across the face.
11. Reduce speed on slopes and in sharp turns to prevent tipping or loss of control. Exercise extreme caution when changing direction on slopes.
12. Stay alert for holes in terrain and other hidden hazards.
13. Use care when pulling loads or using heavy equipment.
 - A. Use only approved drawbar hitch points.
 - B. Limit loads to those you can safely control.
 - C. Do not turn sharply. Use care when backing.
 - D. Use counterweight(s) or wheel weights when suggested in owner's manual.
14. Watch out for traffic when crossing or near roadways.
15. When using any attachments never direct discharge of material toward bystanders nor allow anyone near vehicle while in operation.
16. Handle gasoline with care—it is highly flammable.
 - A. Use approved gasoline container.
 - B. Never remove cap or add gasoline to a running or hot engine or fill fuel tank indoors. Wipe up spilled gasoline.
 - C. Open doors if engine is run in garage—exhaust fumes are dangerous. Do not run engine (motor) indoors.
17. Keep the vehicle and attachments in good operating condition, and keep safety devices in place. Use guards as instructed in owner's manual.
18. Keep all nuts, bolts, and screws tight to be sure the equipment is in safe working condition.
19. Never store the equipment with gasoline in the tank inside a building where fumes may reach an open flame or spark. Allow engine to cool before storing in any enclosure.
20. To reduce fire hazard keep engine free of grass, leaves or excessive grease.
21. The vehicle and attachments should be stopped and inspected for damage after striking a foreign object, and the damage should be repaired before restarting and operating the equipment.
22. Do not change the engine governor settings or overspeed the engine.
23. When using the vehicle with mower, proceed as follows:
 - (1) Mow only in daylight or in good artificial light.
 - (2) Never make a cutting height adjustment while engine (motor) is running if operator must dismount to do so.
 - (3) Shut engine (motor) off when removing grass catcher and/or unclogging chute.
 - (4) Check blade mounting bolts for proper tightness at frequent intervals.
24. Check grass catcher bags frequently for wear or deterioration. Replace with new bags for safety protection.

KNOW YOUR TRACTOR

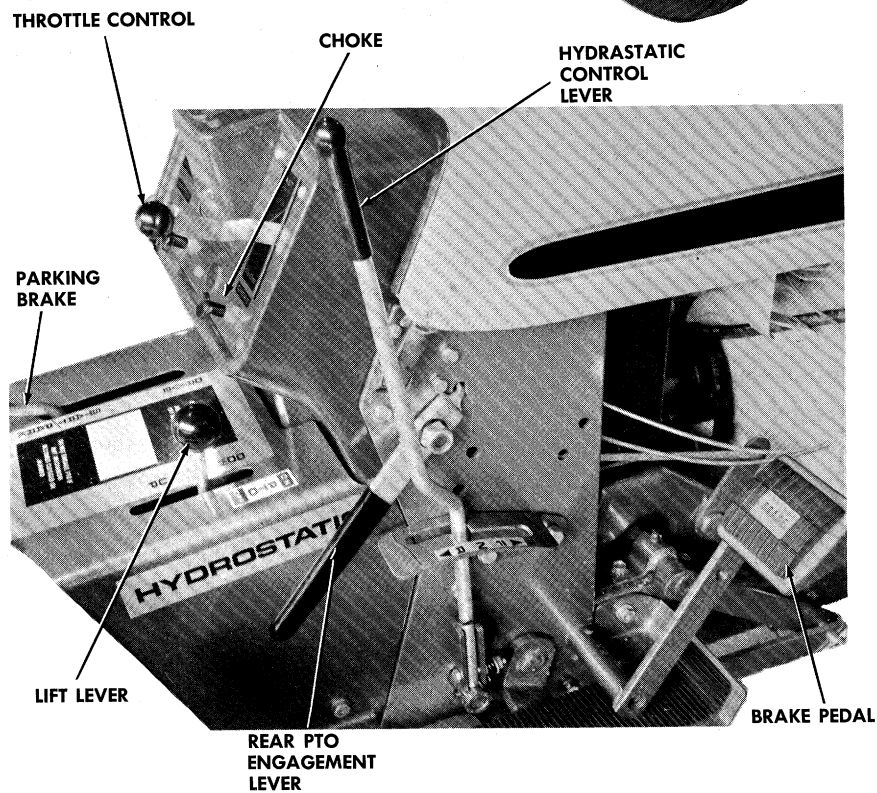
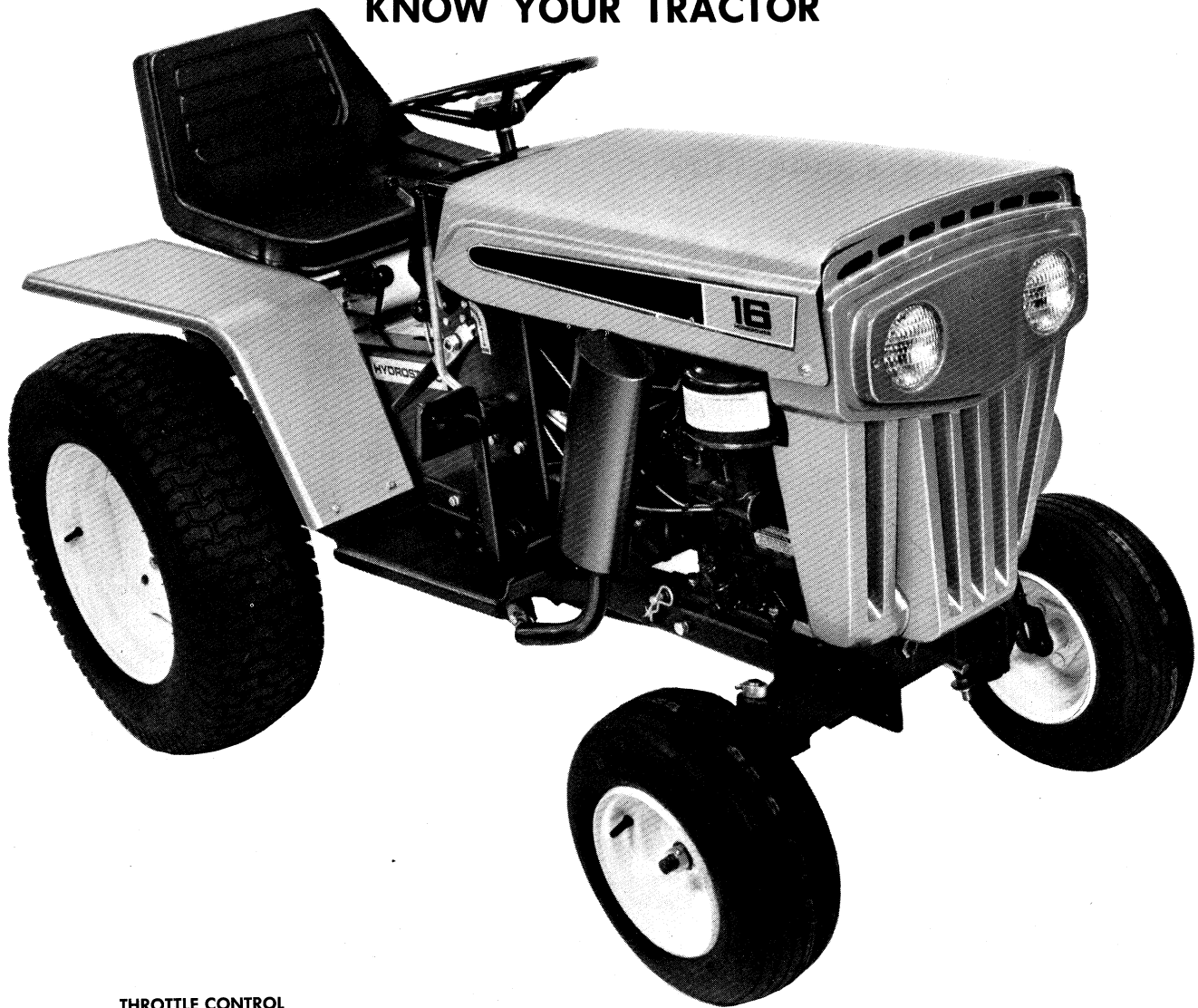


FIGURE 1.

ASSEMBLY INSTRUCTIONS

WARNING

The tractor shall not be operated without the entire grass catcher or chute deflector in place when using the cutting deck.

NOTE

Under normal usage bag material is subject to wear, and should be checked periodically. Be sure any replacement bag complies with the mower manufacturer's recommendations.

ACTIVATING THE BATTERY

WARNING

ELECTROLYTE IS A MIXTURE OF SULPHURIC ACID AND WATER. AVOID CONTACT WITH SKIN, EYES, AND CLOTHING. IF ELECTROLYTE IS SPILLED FLUSH AREA WITH CLEAR WATER AND NEUTRALIZE WITH SOLUTION OF WATER AND BAKING SODA OR WATER AND AMMONIA.

CAUTION

Always add electrolyte to battery before battery is installed in vehicle.

1. Remove vent plugs.
2. **When using 6 quart or 2 quart container**—place package upright; pull tab back to edge of carton, pull out hose; snip off end of hose. Fill each cell until electrolyte level rises to split ring at bottom of vent well.

DO NOT OVER FILL

3. After filling cells, wait five to ten minutes and add additional electrolyte if necessary to bring electrolyte to proper level.
4. Replace vent caps.
5. **Charge battery** for 10 to 15 minutes at 25-30 amps. or for 30 minutes at 4-6 amps.

INSTALLING THE BATTERY. See Figure 2.

- Step 1. Place the battery in the tractor with the Negative terminal towards the front of the tractor. Do not push the battery all the way in.
- Step 2. Attach the positive cable to the positive battery terminal. The positive cable is marked (P+).
- Step 3. Attach the negative cable to the negative battery terminal. The negative cable is marked (N—).
- Step 4. Hook the rear hold down rod in the hole in the bottom of the battery box.
- Step 5. Slide the battery in place.
- Step 6. Place the cross rod over the rear hold down and place a flat washer and wing nut on the rear hold down rod.

NOTE

Do not tighten.

- Step 7. Hook the front hold down rod in the hole in the bottom of the battery box.
- Step 8. Place the cross rod over the front hold down rod and place a flat washer and wing nut on the front hold down rod.
- Step 9. Tighten the wing nuts finger tight.

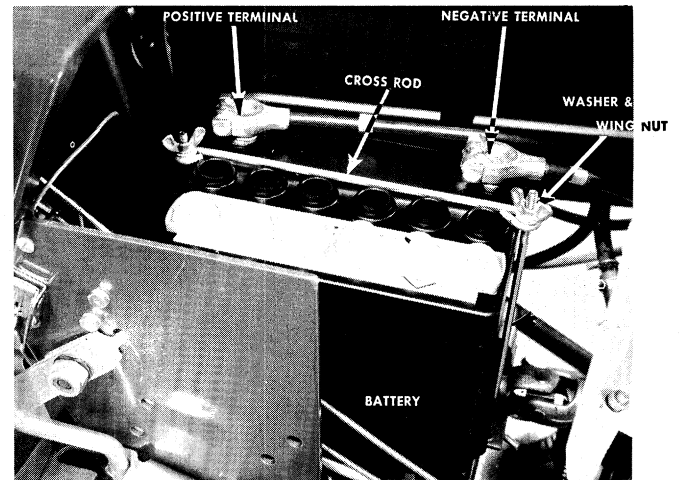


FIGURE 2. BATTERY INSTALLATION

ASSEMBLING THE THREE POINT HITCH

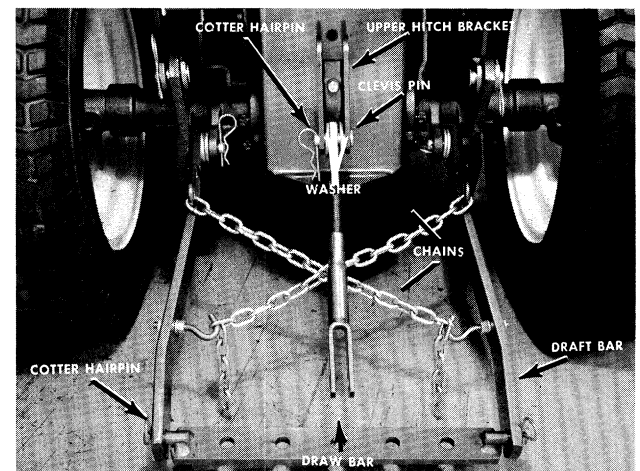


FIGURE 3. THREE POINT HITCH

- Step 1. Adjust the clevis end on both the right and left sides of the tractor so that 3-1/2 inches of threads show. See Figure 4.
- Step 2. Assemble the right hand draft bar assembly to the axle bracket using the longest clevis pin, two large washers and a cotter hairpin. See Figure 5.

NOTE

The tool box must be removed when attaching the disc. See Fig. 26.

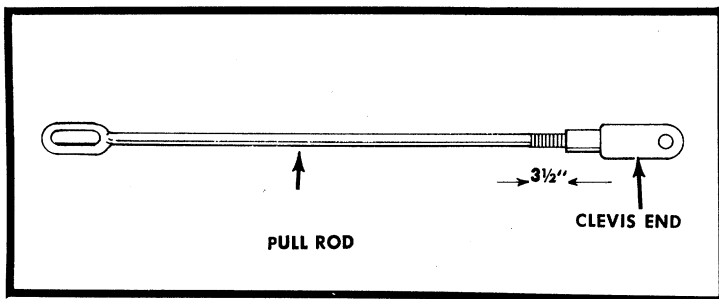


FIGURE 4. PULL RODS

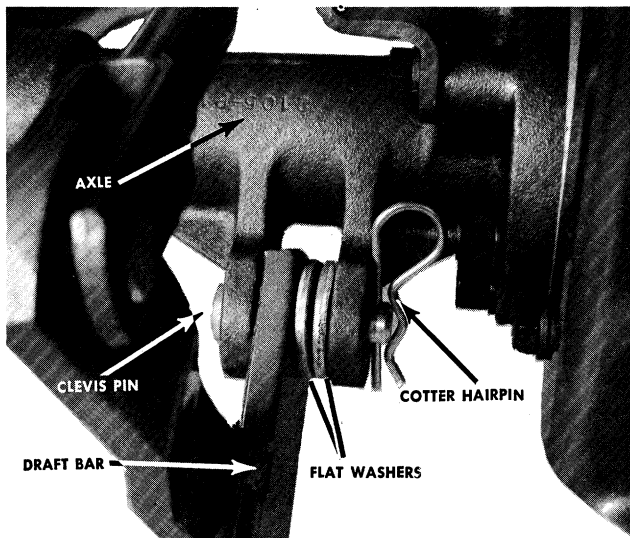


FIGURE 5. DRAFT BAR ASSEMBLY

Step 3. Assemble the left hand draft bar the same way.

Step 4. Assemble the clevis end of the pull rods to the top hole in the draft bars using the short clevis pins and secure with cotter hairpins. See Figure 6.

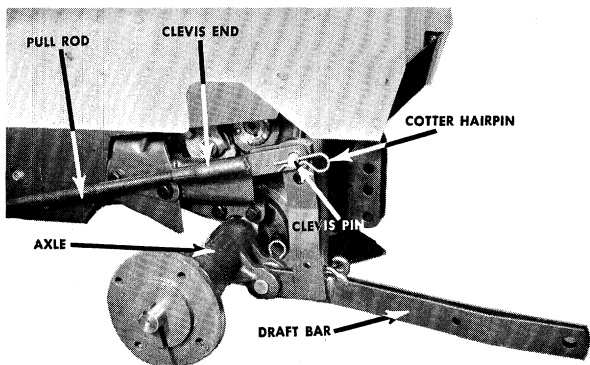


FIGURE 6. PULL ROD ASSEMBLY

Step 5. Assemble the draw bar to the draft bars and secure with cotter hairpins. See Figure 3.

Step 6. Screw one hex nut all the way on each of the hook bolts. See Figure 7.

Step 7. Place a lockwasher on the hook bolt and place the hook bolt through the draft bar so it is on the inside. Do this on both draft bars. See Figures 3 and 7.

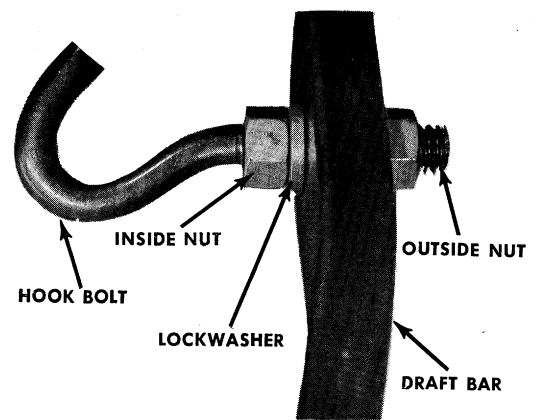


FIGURE 7. HOOK BOLT ASSEMBLY

NOTE

Only screw the outside nut on a few threads so it can be adjusted to take up the slack in the chain.

Step 8. Fasten the chains to the rear hook welded on the draft bar and cross over to the hook bolt. Do both chains this way. See Figure 3. Pull the chains to make as tight as possible.

Step 9. Tighten the outside nuts on the hook bolt until there is only about 1/2" slack in the center of the chain. See Figures 3 and 7.

Step 10. Tighten the inside nut. See Figure 7.

Step 11. Assemble the two halves of the center adjustment arm together until there is 1-7/8" of thread showing. See Figure 8.

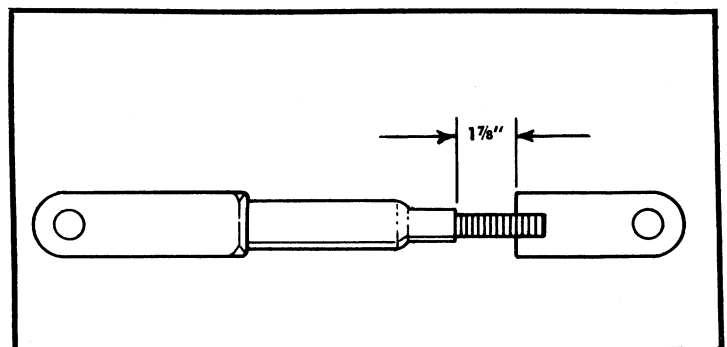


FIGURE 8. CENTER ADJUSTMENT ARM

Step 12. Assemble the flat end of the Center Adjustment Arm to the bottom hole in the Upper Hitch Bracket with two flat washers, a clevis pin and a cotter hairpin. See Figure 3.

THREE POINT HITCH ADJUSTMENT

The upper hitch bracket can be attached in the lower mounting position as shown in Figure 3 or the two bolts can be removed and the upper hitch bracket can be mounted in the higher position. It also can be mounted upside down to obtain the maximum adjustment when using the rear mounted attachments.

The draft bars can also be switched from side to side so they bow in instead of out as shown in Figure 3.

CHECKING OIL AND GASOLINE

FILL FUEL TANK

Use clean fresh "regular" grade gasoline. Fill tank completely. Gasoline tank capacity is 4-1/2 gallons.

DO NOT FILL GASOLINE TANK WHILE ENGINE IS RUNNING. Avoid spilling gasoline on a hot engine—this may cause an explosion and serious injury.

DO NOT MIX OIL WITH GASOLINE

OIL RECOMMENDATIONS

WINTER
(Below 40°F.)
Use SAE 5W-20

SUMMER
(Above 40°F.)
Use SAE 30

Any high quality detergent oil having the American Petroleum Institute classification "For Service MS" can be used in your Briggs & Stratton engine. Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits.

The above oil recommendations are the result of extensive testing. No special additives should be used.

FILL CRANKCASE WITH OIL

Remove the oil filler plug. Place the engine level. Fill the crankcase to overflowing. **POUR SLOWLY.** CAPACITY 4 PINTS. Replace the filler plug.

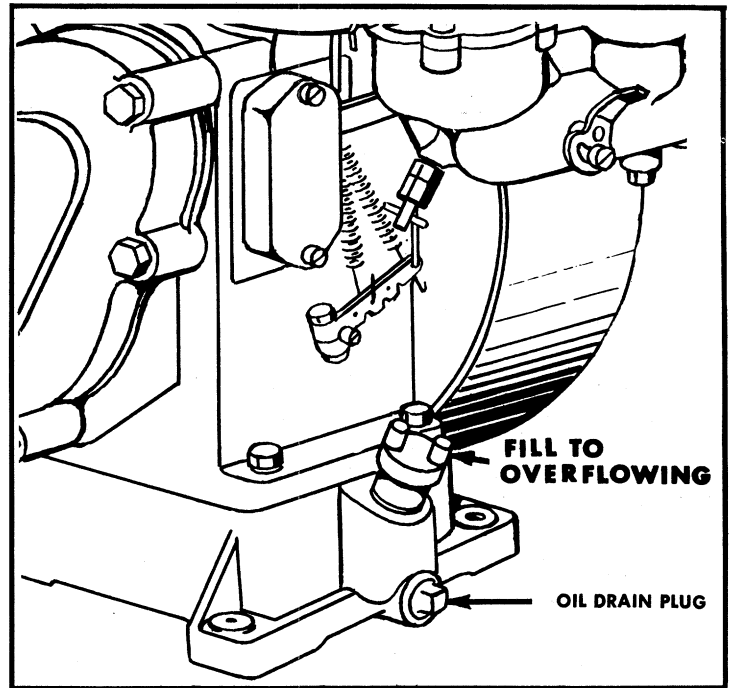


FIGURE 9. OIL FILL AND DRAIN

GENERAL INFORMATION

ENGINE AND DRIVE TRAIN

ENGINE—15 HP synchro-balanced Briggs and Stratton cast iron block with a 12-volt electric system.

HYDROSTATIC TRANSMISSION—Marshallmatic Model 10 Hydrostatic. Driven by a universal shaft from the engine.

REAR AXLE—Peerless two speed axle driven by a gear on the hydrostatic.

ORIENTATION

Your tractor is right hand (R.H.) or left hand (L.H.) as you operate it.

HYDROSTATIC CONTROL LEVER (Control Lever)

The Control Lever is used to regulate the ground speed of the tractor. Moving the Control Lever forward (F) makes the tractor travel faster, moving the Control Lever backwards (R) moves the tractor in reverse.

To increase rear wheel torque (pulling power) move control lever towards the NEUTRAL position. The tractor responds similar to shifting to a lower gear with a gear type transmission.

The control lever can be used for dynamic braking (to hold back the unit) when going down hill or when using rotary tiller by moving the lever towards NEUTRAL position. Additional braking can be obtained by moving control lever gradually into the direction opposite of your direction of travel. See page 11 for adjustment.

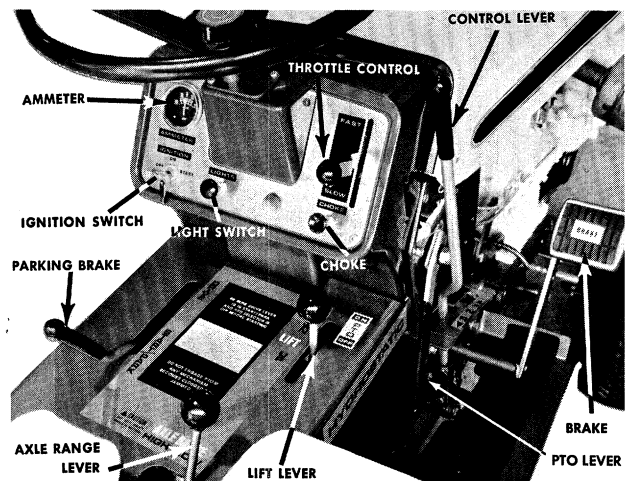


FIGURE 10. CONTROLS

When you depress the brake pedal, the Control Lever moves into Neutral (N).

BRAKE PEDAL

This pedal is operated with your right foot. Normal stopping is done with the Hydrostatic Control Lever. The Brake Pedal is for emergency stopping only.

PARKING BRAKE

The parking brake is located on the left side of the tractor.

To operate, depress the brake pedal with your foot and pull the parking brake into the START/PARK position.

The tractor will only start when the parking brake is in the START/PARK position.

To release, place your foot on the brake pedal and move the parking brake into the DRIVE position.

NOTE

To free wheel the tractor with the engine off, place the parking brake in the DRIVE position.

AXLE RANGE LEVER

Your tractor is equipped with a two speed rear axle to make your tractor more versatile.

The LOW range is used for operating the rotary tiller, mold board plow and should be used anytime the engine is laboring hard.

Use the HIGH range for regular work.

LOW RANGE 0-4 mph

HIGH RANGE 0-8 mph

The Axle Range Lever must be in either the HIGH or LOW range position. The tractor will not move if it is in the center position.

IGNITION SWITCH

Turn the key to the right to engage the starting motor on the engine. To shut off the engine turn the key to the left to the OFF position. See Figure 10.

WARNING

Remove the key from the switch when the tractor is not in use.

THROTTLE CONTROL

The throttle is used to regulate the engine speed. Move the throttle control up to FAST position and down to the SLOW position. See Figure 10.

When using the tractor engine for a source of power for the cutting deck and the rotary tiller, the engine should be operated at the FAST speed.

CHOKE

Before starting the engine, pull the choke knob all the way out. After engine starts, move the choke knob in gradually until it is completely in.

When the engine is hot the choke may not be needed to start. See Figure 10.

LIFT LEVER

The Lift Lever is located on the right hand side of the tractor and is used to raise and lower the attachments. The lift is hydraulic and will only operate when the engine is running, however, you can move the lift lever to the DOWN position and lower any attachment if the engine is not running. See Figure 10.

The lift lever is spring loaded and will always return to the CENTER position.

The three point hitch is operated off the lift lever and does not have to be disconnected when attaching the cutting deck or snow blade.

DECK ADJUSTER

The deck adjuster is located on the left hand side of the tractor and is used to set the cutting height of the mowing deck in conjunction with the wheels on the mowing deck. To operate the deck adjuster, depress the thumb button and move it forward to set the low cut and move it to the rear to set the high cut.

The deck adjuster sets the low limit on the mowing deck so the deck can still float. The deck adjuster and the wheels on the mowing deck must be adjusted so the deck is parallel to the ground. See Figure 11.

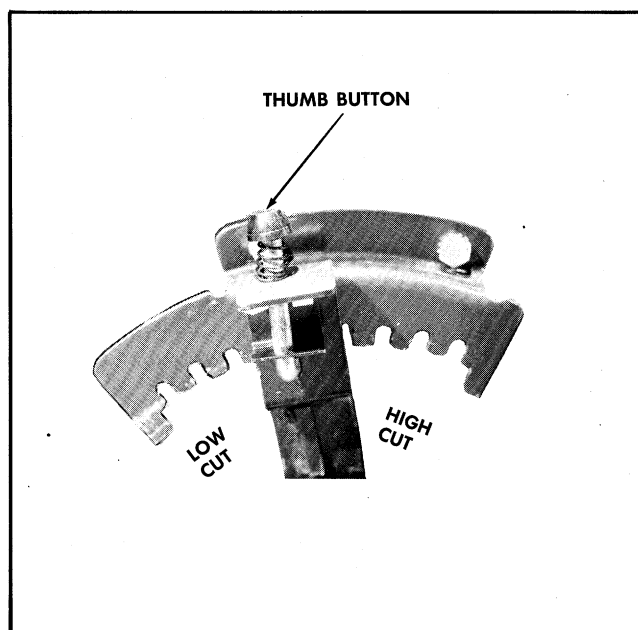


FIGURE 11. DECK ADJUSTER

POWER TAKE OFF (PTO) FRONT AND REAR

There are two PTO's on your tractor. The PTO (see Figure 12) is located behind the grille and is used to operate the snow thrower. This PTO is attached directly to the engine and runs whenever the engine is running.

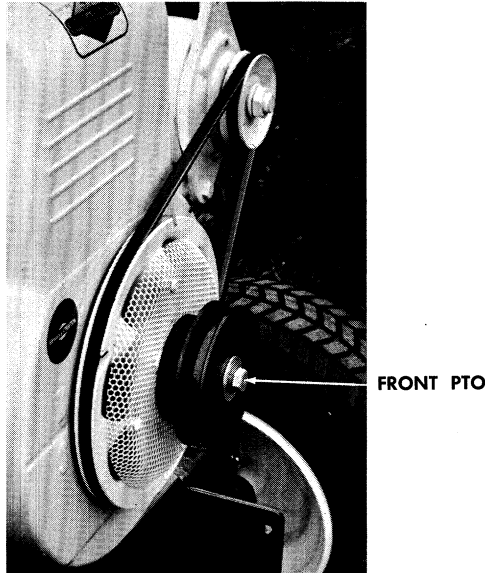


FIGURE 12. FRONT PTO SHOWN WITH GRILL REMOVED

The rear PTO (see Figure 13) is located under the tractor and is used to operate the grass cutting deck and the rotary tiller.

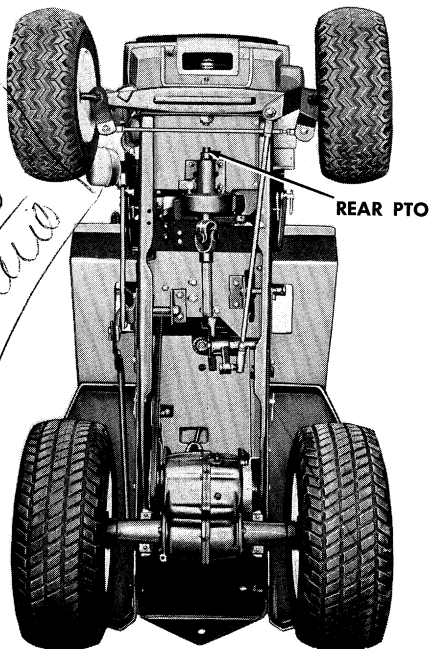


FIGURE 13. REAR PTO SHOWN WITH DRIVE SHAFT ATTACHED

The rear PTO can be shut off while the engine is running by moving the PTO lever, located on the right hand side of the tractor, into the OFF position. See Figures 10 and 14.

The PTO Lever must be in the disengaged position before the engine will start.

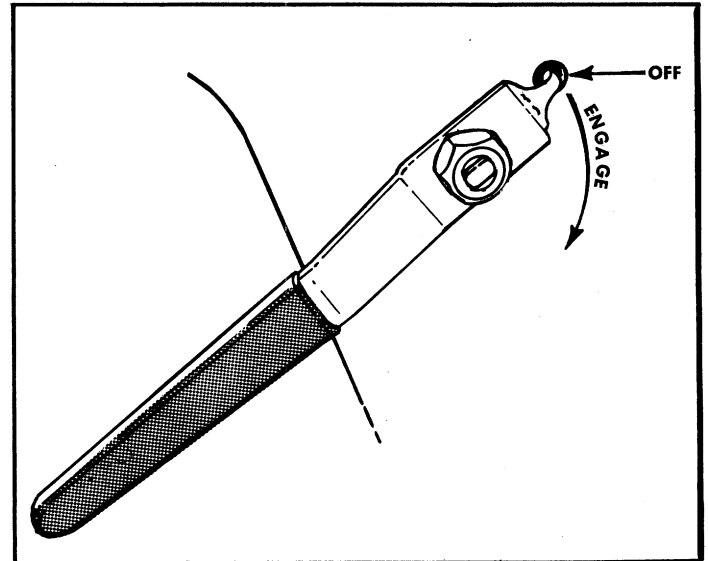


FIGURE 14. PTO LEVER

LIGHTS

Pull the light switch out to turn on the headlights. See Figure 10.

WHEELS

Front 16 x 6.50— 8" High Floatation
Rear 27 x 9.50— 15" High Floatation

Tire pressure is from 7 to 10 psi.

NOTE

Tires are overinflated for shipment. Reduce tire pressure to 7 to 10 psi before using.

One hundred pounds (two 50 pound weights) can be attached to the rear wheels to increase rear traction for attachments such as the plow, snow blade, snow blower and rotary tiller.

AMMETER

The ammeter registers the rate of battery charge or discharge. The ammeter should register on the plus (+) side when the engine is running in the "Fast" position until the battery is completely charged. With a fully charged battery or with the engine idling the ammeter will not show a charge. See Figure 1.

REAR WHEEL ADJUSTMENT

Each rear wheel is adjustable out 2-3/4 inches on the axle. See Figure 15.

To adjust, loosen the hex bolt and slide the rear hubs out.

The rear hubs are extended to give greater stability when operating on hilly terrain.

CAUTION

Do not over extend the hubs.

SEAT

The seat is adjustable forward or backward by removing the seat bolt and reassembling it in a different hole.

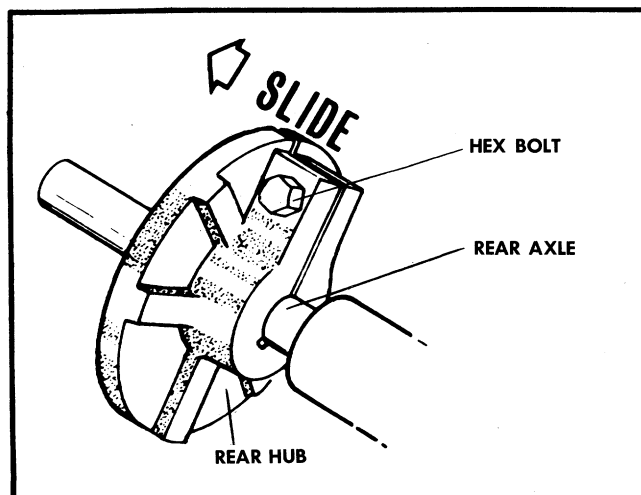


FIGURE 15. REAR HUBS

OPERATING INSTRUCTIONS

IMPORTANT

After striking a foreign object, stop the engine (motor), remove wire from spark plug, thoroughly inspect the mower for any damage, and repair the damage before restarting and operating the mower.

CAUTION

1. Keep all shields and guards in place.
2. Before leaving operator's position:
 - Shift transmission to neutral
 - Set parking brake
 - Disengage attachment clutch
 - Shut off engine
 - Remove ignition key
3. Wait for all movement to stop before servicing machine.
4. Keep people and pets a safe distance away from machine.

STARTING YOUR ENGINE

To get the feel of your tractor, operate it in a large open space until you become familiar with the controls.

1. Be sure you have read the manual to acquaint yourself with the controls.
2. Fill engine with oil and gasoline as outlined on page 5 of this manual.
3. Attach the spark plug wire.
4. Place the Parking Brake in the START/PARK position. See Figure 10.
5. Be sure the Control Lever is in the NEUTRAL (N) position. See Figure 10.
6. Place the PTO Lever in the OFF position. See Figure 13.

NOTE

The engine will not start unless the PTO Lever is in the OFF position.

7. Place the Axle Range Lever in either the HIGH or LOW range.
8. Pull the choke knob all the way out.
9. Place the throttle control lever halfway between FAST and SLOW.
10. Turn the ignition key to the right to engage the starter. When the engine starts, move the choke knob in half way. After the engine warms up, push the choke knob in gradually until completely in.

NOTE

When the engine is hot, the choke may not be needed to start the engine.

CAUTION

Do NOT run starter for more than 30 seconds at a time. If engine does not start after several tries, place throttle control in FAST position, wait several minutes and try again without moving the throttle lever from the FAST position.

STOPPING YOUR ENGINE

To stop the engine, turn the ignition key to the left.

WARNING

Never leave the ignition key in the tractor when not in use to prevent accidental starting.

Remove the spark plug wire from the spark plug when tractor is not in use to prevent accidental starting.

OPERATING THE TRACTOR

1. Place the throttle control in the FAST position.

The engine should be run with the throttle control in the FAST position to obtain the maximum efficiency from your tractor.

The sound you may hear when you accelerate is the normal operating sound of the hydrostatic transmission.

The faster you push the control lever forward or backward, the louder the sound.

If you attempt to operate the tractor with the throttle control in the slow position the hydrostatic transmission will be noisy. Keep the throttle control in the fast position.

2. While holding the brake pedal down with your right foot, move the parking brake into the DRIVE position.
3. Release the brake and move the control lever into either the FORWARD (F) or REVERSE (R) position.
4. The brake pedal is to be used for emergency stopping only. Normal stopping is done using the control lever. This is called dynamic braking. When the brake pedal is depressed the control lever will return close to the neutral position so the tractor brake will stop the tractor. However, the tractor may creep either F. or R. when the pedal is released. The engine and transmission will hold the tractor back when you decelerate (slow down)

or when you are going down a hill when you move the control lever towards the NEUTRAL position. It also will hold the tractor back when you are using the rotary tiller.

Additional braking can be obtained by moving the control lever gradually into the direction opposite of your direction of travel.

NOTE

To increase rear wheel torque (pulling power) move control lever towards the NEUTRAL position. The tractor responds similar to shifting to a lower gear with a gear type transmission.

STOPPING THE TRACTOR

To stop the motion of the tractor move the control lever into the NEUTRAL position. The control lever will also move into the NEUTRAL position when the brake pedal is depressed, however, normal braking is done by moving the control lever into the NEUTRAL position.

Always set the parking brake when you stop the tractor for any length of time or park it.

Always remove the ignition key when the tractor is not being used to prevent accidental starting.

MAINTENANCE

OIL LEVEL—The oil level should be checked after every eight (8) hours of operation.

NOTE: KEEP THE AREA AROUND THE OIL FILL CLEAN.

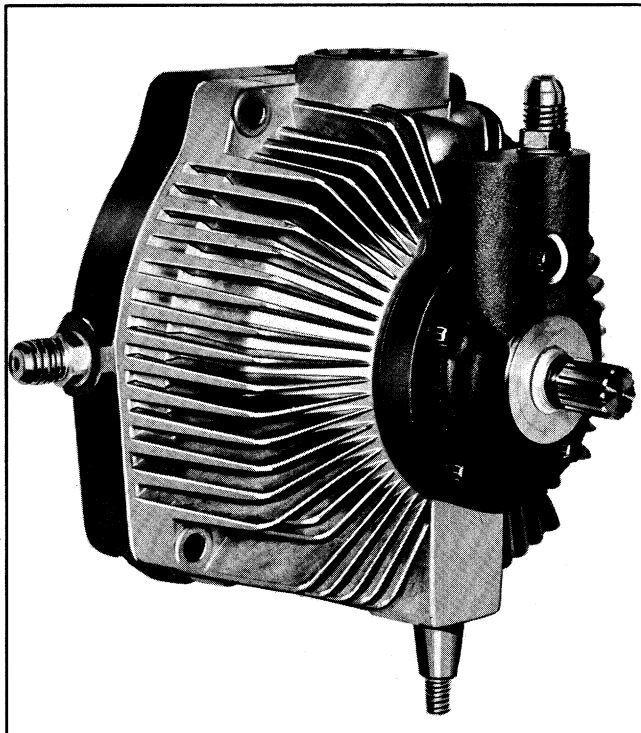


FIGURE 16. HYDROSTATIC

TYPE OF OIL. Use Type A or F Automatic Transmission Oil. The capacity is approximately 5 quarts.

NOTE

Only check the oil level when the transmission is cold.

See the Lubrication Section of this manual on page 15 for instructions on how to check the hydrostatic oil level.

OIL FILTER—A replaceable oil filter is located under the left hand side of the frame.

It can be removed by turning it counter-clockwise by hand. Use Fram filter number PH-16 or order through your dealer under part number 727-162.

OIL FILTER CHANGING:

Homeowners—once a year or 200 operating hours.
Industrial or Commercial—once every two months.

COOLING

Proper fan cooling is essential to both performance and life of the transmission. The transaxle exterior should be free of dirt, oil and grass, particularly the finned area behind the fan.

TROUBLESHOOTING

NOTE

Normal repairs, such as replacing hoses, fittings, lift valves, etc., can be repaired the same as normal hydraulic systems.

After carefully checking the tractor, using the following troubleshooting section of this manual, it is determined that the hydrostatic is defective, order a new unit which will be charged to you. Return the defective unit. It will be tested at the factory to verify its failure. If the unit is proved to be defective, credit for the returned unit will be issued.

CAUTION

If a new hydrostatic transmission is installed, be sure to remove all plugs and caps that are used to prevent oil from leaking during shipment.

To perform a temporary power check, carefully "square off" or align both front wheels against a solid wall. With both front tires firmly against this wall place the throttle control in the FAST position and gradually move the Control Lever forward slowly until the tires spin.

This is only a temporary procedure to aid in quickly checking out general engine and axle performance. However, a few tries are usually adequate to allow an experienced mechanic to observe general engine performance, such as engine miss, carburetor adjustment, etc.

If the engine performance appears to be normal, a thorough inspection should be made of the transmission, axle range selector lever, input drive line and control linkage components. Proceed as follows:

AXLE—Determine if axle is in satisfactory working condition. Determine if range selector is in full engaged position. (HIGH or LOW range.)

CONTROL LINKAGES—Adjust and secure linkages leading from transmission to control lever. Replace worn parts to minimize free movement of linkages. Do not overstroke. The maximum movement of the control linkage in either direction is set at the factory. Any modifications to overstroke the control linkage will eventually result in permanent damage to the transmission.

If the oil level in the reservoir is below normal level, inspect the entire transmission and axle for oil leaks and isolate.

CAUTION

If inspection is made while the tractor is blocked up and the engine is running, **BEWARE OF THE SPINNING FAN.**

LOSS OF POWER OUTPUT

- 1) Input power supply inadequate
- 2) Control linkages out of adjustment
- 3) Oil level in reservoir below normal continuously (see loss of oil paragraph)
- 4) Intake oil line fittings loose (at axle and at charge pump intake)
- 5) Output pinion gear defective or missing
- 6) Axle—defective range selector lever not properly engaged (high or low range)
- 7) Transmission—defective

TRANSMISSION OVERHEATING

- 1) Finned area of transmission clogged with grass and dirt
- 2) Defective cooling fan
 - a) Fan blade missing
 - b) Loose fan
 - c) Improper fan blade pitch angle (due to damage)
- 3) Oil level in rear axle below normal
- 4) Working loads beyond capabilities of transmission (improper selection of axle range)
- 5) Transmission defective

LOSS OF OIL (ISOLATE)

- 1) Loose oil lines or defective oil lines
- 2) Loose oil filter
- 3) Input shaft oil seal (oil leak visible)
- 4) Control shaft oil seal (oil leak visible)
- 5) Defective or missing "O" ring on oil inlet adapter of transmission (oil leak visible)
- 7) Leaking lift valve
- 8) Leaking lift cylinder
- 9) Loose hydraulic fittings

AUXILIARY LIFT VALVE AND CYLINDER WILL NOT LIFT OR HOLD

- 1) Defective or leaking lift valve
- 2) Leaking cylinder
- 3) Defective hydraulic hoses
- 4) Loose hydraulic fittings

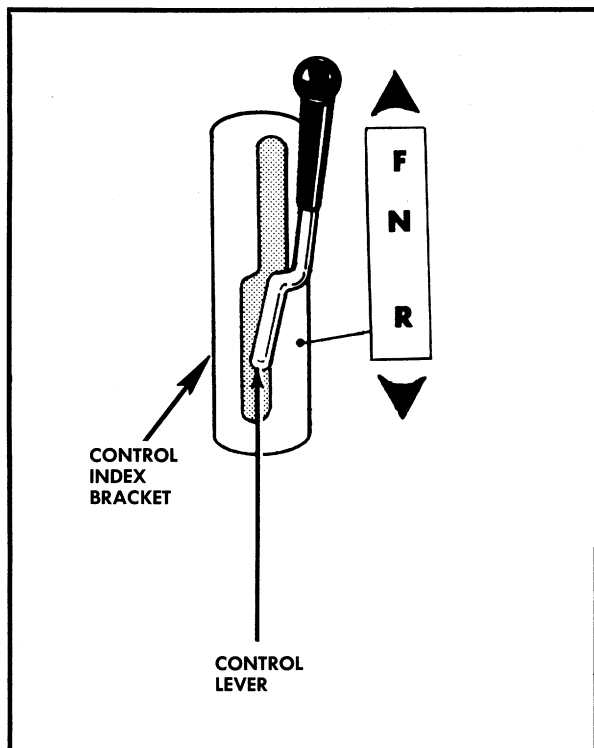


FIGURE 17. CONTROL LEVER

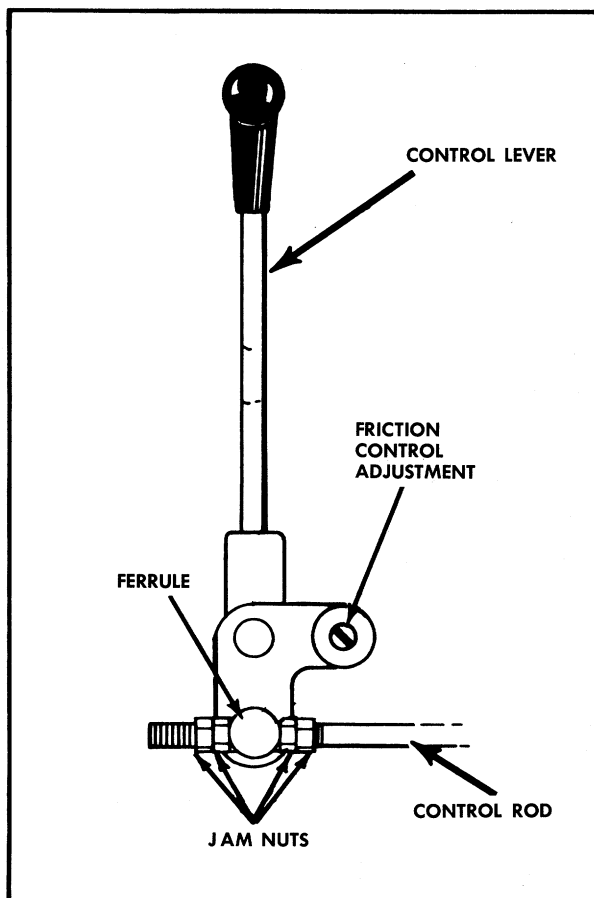


FIGURE 18. CONTROL LEVER ADJUSTMENT

HYDROSTATIC CONTROL LEVER ADJUSTMENT.

The hydrostatic control lever should be adjusted so that the tractor does not creep forward or backward when the control lever is in the neutral (N) position on the Control Index Bracket. In addition, when the brake pedal is depressed the control lever should return from forward (F) or reverse (R) to the neutral (N) position. If this does not occur, adjust the control lever as follows:

1. Depress the brake pedal, put the parking brake in the Start/Park position and stop the engine.
2. Loosen the 4 jam nuts so the lever can be moved without moving the control rod.
3. Move the control lever to the neutral position on the control index bracket.
4. Retighten the jam nuts on each side of the ferrule.
5. Start engine and check.
6. If the tractor stops and does not creep, but the lever is still slightly off the neutral position the control index bracket can be loosened and centered to the lever.
7. This procedure may be repeated until proper adjustment is obtained.

NOTE

Improper use of the control lever and brake pedal can damage the linkage. The pedal is intended for emergency stops only and when putting the park lever into the park position.

FRICTION CONTROL ADJUSTMENT

The harder the tractor pulls, the greater the tendency for the control lever to return to neutral. For example, the mold board plow would need to be adjusted tighter than would be necessary for the cutting deck.

The adjustment can be made for the different attachments by loosening the lock nut and adjusting the screw as shown in Figure 18.

HYDROSTATIC LINKAGE ADJUSTMENT

Use the following procedure to adjust the hydrostatic control linkage.

1. Jack up the rear of the tractor so that the rear wheels are off the floor, and block the front wheels securely.
2. Put the control lever in the neutral position. See Figure 17. Depress the foot pedal and move the parking brake into the Start/Park position. Put the axle range lever in the neutral position. Loosen the pedal adjustment nut on the end of the brake rod until the brake is loose. See Figure 20. The rear wheels can be rotated by hand freely now.
3. Position the axle range lever into the low range. See Figure 10. Loosen the nut on the control adjustment plate enough to allow the tear drop control lever and the control adjustment plate to move independently of each other. See Figure 19.
4. Start the engine and run at half throttle.

WARNING

Use extreme caution from this point on due to the revolving cooling fan on the hydrostatic pump.

NOTE

Some new hydrostatic units may turn very slowly, but if the wheels can be stopped by hand the adjustment is proper.

5. Rotate the tear drop control lever on the pintle shaft in both directions and determine the true neutral (the point at which the rear wheels stop and do not turn in either direction)

6. In this position, with care not to move the control lever, tighten the nut under the control adjustment plate.
7. Stop the engine. Position the axle range lever in neutral. Tighten the elastic stop nut on the brake until the brake holds and the rear wheels cannot be rotated. See pedal adjustment nut in Figure 21.
8. Lower the tractor to the floor. Start the engine and road test.

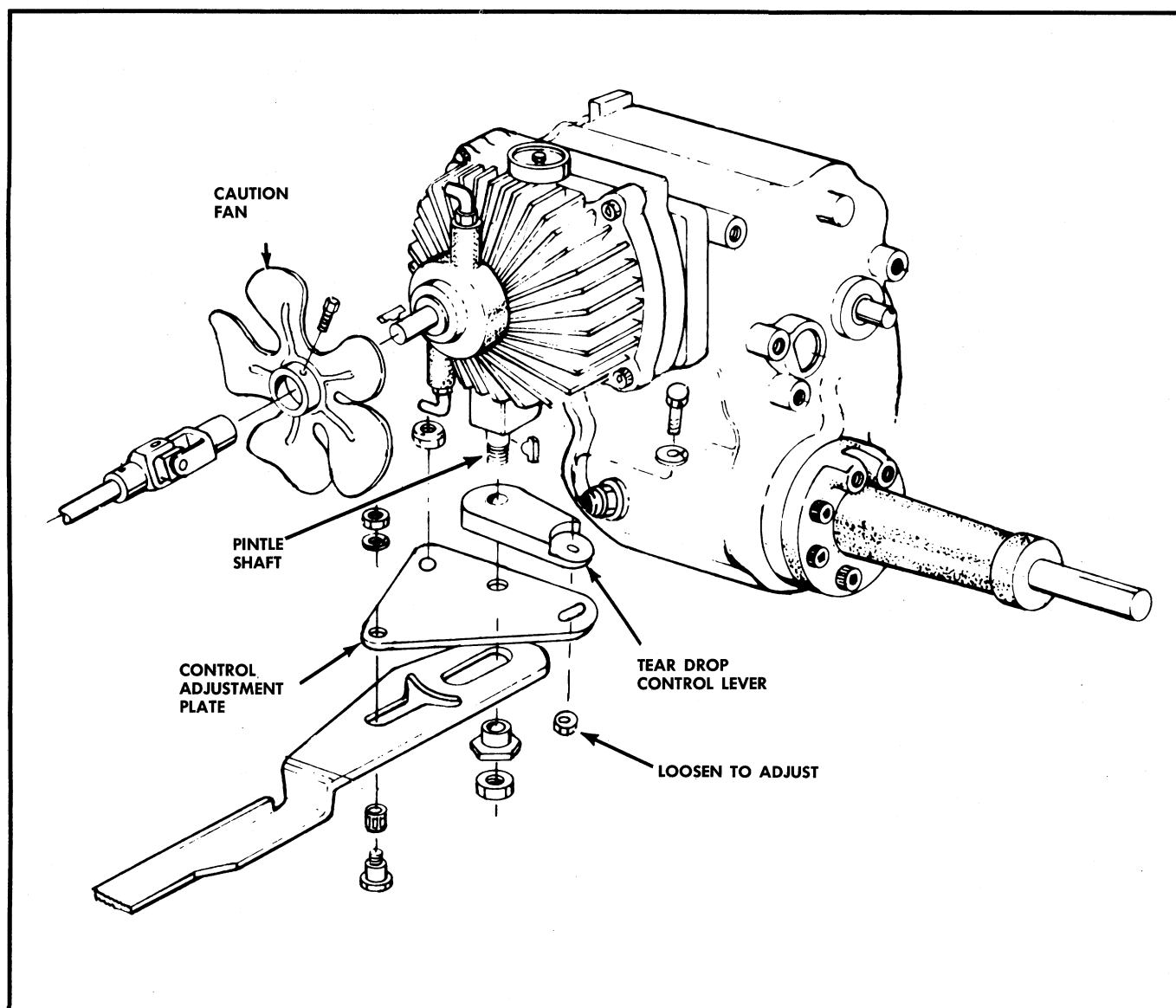


FIGURE 19. HYDROSTATIC LINKAGE ADJUSTMENT

BRAKE ADJUSTMENT

Step 1. With the Brake Pedal released, the pins on the disc brake should be in the bottom of the "V" on the cam arm as shown in Figure 20.

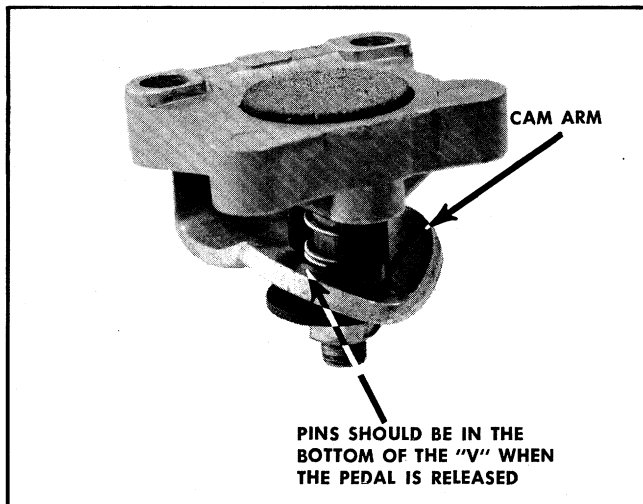


FIGURE 20. PEDAL ADJUSTMENT

Step 2. Adjust the pedal adjustment nut in Figure 21, if necessary.

NOTE

Once the pedal adjustment is made it is not necessary to adjust it every time you adjust the brake.

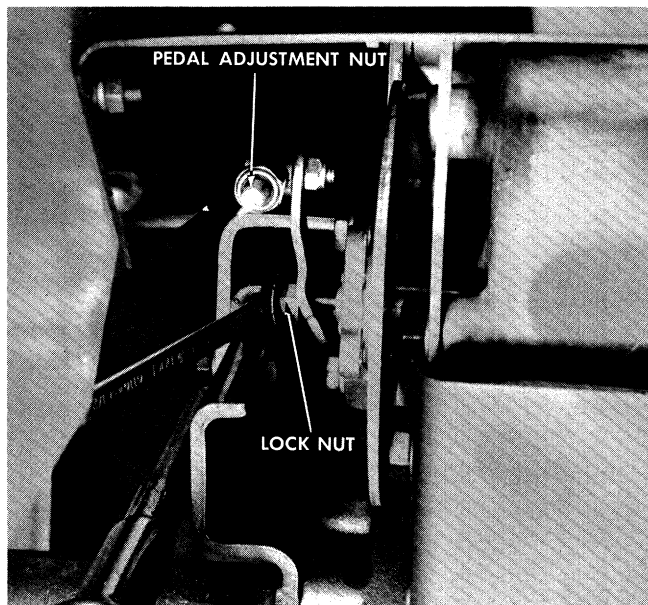


FIGURE 21. BRAKE ADJUSTMENT

Step 3. Tighten the lock nut 1/4 turn and test the brakes. Repeat if necessary.

REAR PTO BELT REMOVAL

- Step 1. Place the PTO Lever in the OFF position. See Figure 14.
- Step 2. Remove the lower belt guard. See Figure 22.
- Step 3. Loosen the set screw in the universal joint where it attaches to the crankshaft of the engine.
- Step 4. Drive out the roll pin in the universal joint.
- Step 5. Slide the universal joint back towards the rear of the tractor.
- Step 6. Remove the PTO belts from the two pulleys and idler.
- Step 7. Reassemble with new belts.

NOTE

Always replace with matched belts.

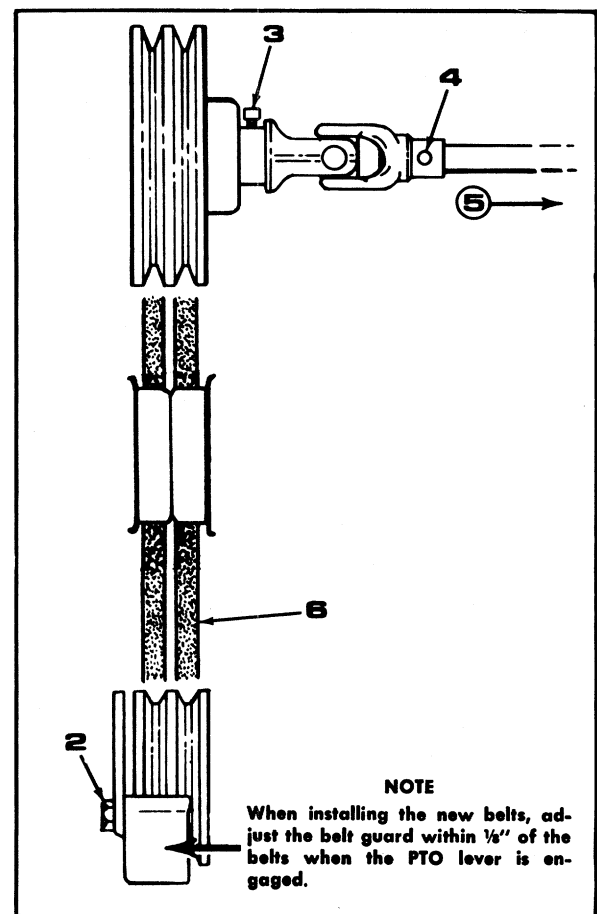


FIGURE 22. PTO BELT REMOVAL

REAR POWER TAKE OFF ADJUSTMENT

If the PTO creeps when it is in the disengaged position the belt should be adjusted. To adjust:

- Step 1. Set the engagement lever in the ENGAGED position.
- Step 2. Remove the cotter-pin on the PTO adjusting rod.

Step 3. Remove the rod from the bracket and unscrew it 3 complete turns and insert back into the bracket.

Step 4. Replace the cotter-pin. See Figure 23.

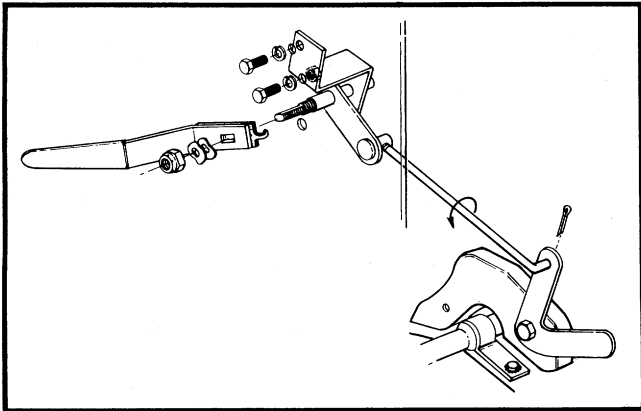


FIGURE 23. PTO HANDLE ADJUSTMENT

STARTER-GENERATOR BELT.

If your tractor is equipped with a starter-generator as shown in Figure 12, it is necessary to adjust the belt after the first 10 hours of use. To adjust the tension, loosen the adjusting strap and pivot the starter-generator away from the tractor until the belt is tight. Tighten the bolt on the adjusting strap.

NOTE

The belt will deflect about 1/2" when adjusted properly.

A loose belt will slip when starting the tractor and will allow the generator to slip and will not keep the battery charged.

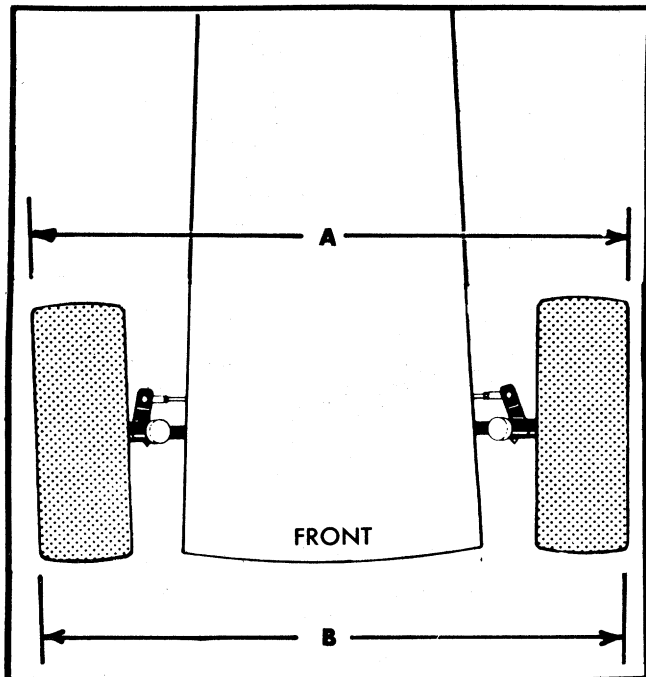


FIGURE 24. TOE-IN ADJUSTMENT

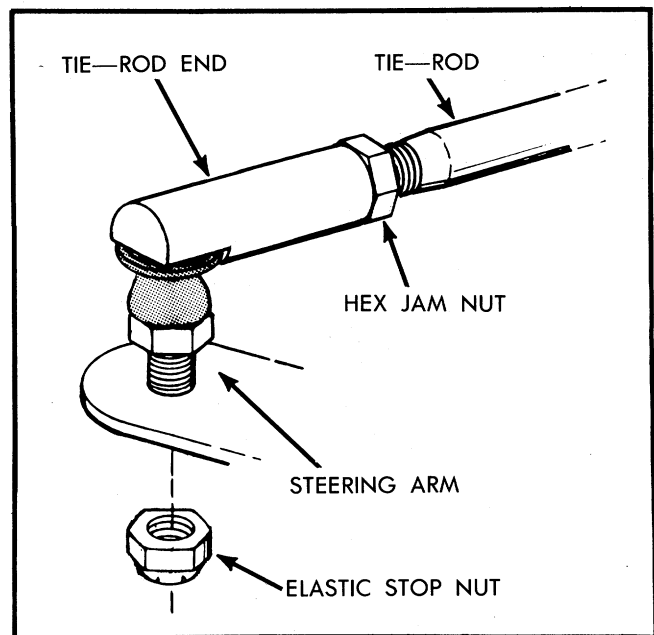


FIGURE 25. TIE ROD END

An overtightened belt will cause the bearings to wear rapidly in the starter-generator and will shorten the belt life.

TIE ROD ADJUSTMENT (TOE-IN)

The front wheels should be approximately parallel. See Figure 24.

To adjust the toe-in, loosen the hex jam nut, remove the elastic locknut, lift the tie rod end out of the hole in the steering arm and screw the tie-rod end in or out to make your adjustment. See Figure 25.

BATTERY CARE

BATTERY FAILURE—Many times new batteries are returned for charging within a few days or a week after sale. Before returning the battery to the dealer who sold you the tractor, make these following checks:

1. Was the battery fully charged when installed? The dry-pack battery should have been placed on a charger and the specific gravity of the battery should read 1.265 to 1.275 before it was installed in the tractor.
2. Were the battery terminals clean, greased and properly tightened when the battery was installed?
3. Batteries are usually involved in ANY starting failure, however, insufficient hours of driving, worn cables, trouble in the electrical system, corroded connections, slipping drive belt can cause a battery to become discharged without the battery being a fault.

SERVICING YOUR BATTERY

It is alright to use drinking water in your battery, excluding mineral water.

Adding water to a battery cell will lower the specific gravity of the electrolyte. Water should not be added unless the tractor is going to be run immediately during freezing weather.

Maintain electrolyte level in the battery to the level indicated on the top of the battery.

Keep the terminals clean and coated with grease.

BATTERY STORAGE

If your tractor is to be stored during an off-season, the battery should be removed from the tractor, placed in a charger until the specific gravity reads 1.265 to 1.275 and stored at approximately 72 F. Batteries should not be placed directly on cement as this will drain the battery. Recharge to bring the specific gravity to normal before placing it in the tractor after storage.

BATTERY REPLACEMENT

Your battery is a standard automotive type battery, and replacements can be purchased locally through your local dealer under part number 725-130.

SPECIFICATIONS

45 Amp. Hours at 20 hours.
9 plates per cell.
Splash Proof Vents
Round automotive type terminals.
Size: 9 x 6-3/4 x 7-1/2 inches.

NOTE

Size may vary slightly between different makes of batteries. Be sure it will fit in the tractor battery case.

LUBRICATION

Your tractor has been engineered to give you years of trouble-free service, however, by following these simple lubrication procedures, you can greatly extend the life of your tractor. (Refer to Figure 29).

1 ENGINE LUBRICATION

DO NOT MIX OIL WITH GASOLINE

OIL RECOMMENDATIONS

WINTER
(Below 40° F.)
Use SAE 5W-20

SUMMER
(Above 40° F.)
Use SAE 30

Any high quality detergent oil having the American Petroleum Institute classification "For Service MS" can be used in your Briggs & Stratton engine. Detergent oils keep the engine cleaner and retard the formation of gum and varnish deposits.

Check before starting and after every 5 hours of operation. BE SURE OIL LEVEL IS MAINTAINED.

Change oil after first 5 hours of operation. Thereafter change oil every 25 hours of operation. Remove the oil drain plug. Drain oil while engine is warm. Remove oil filler cap or plug and refill with new oil. Replace oil filler cap or plug. Add oil regularly after each 5 hours of operation.

The above oil recommendations are the result of extensive testing. No special additives should be used. The capacity of the engine is 4 pints.

2 HYDROSTATIC

The hydrostatic oil level is checked by the dipstick located on the rear axle. To check the oil level, remove the tool box (see Figure 26) and remove the square head plug that has the dipstick attached to it (see Figure 27).

NOTE

CLEAN THE AREA AROUND THE OIL FILL CLEAN.

The oil level should be maintained between the oil level mark and the bottom of the dipstick. See Figure 28.

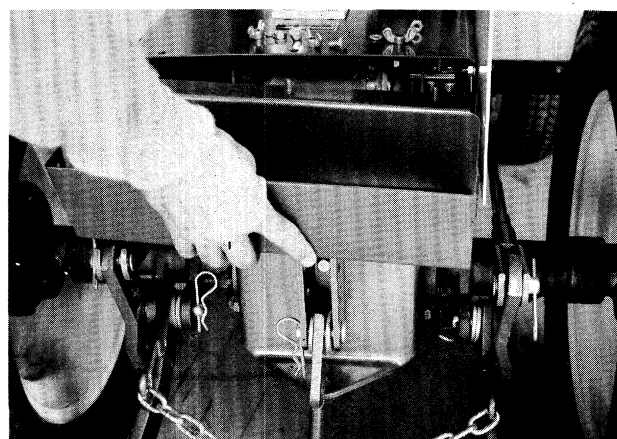


FIGURE 26. TOOL BOX

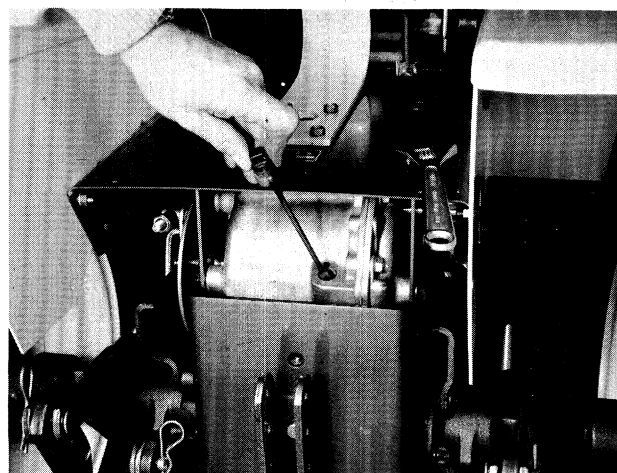


FIGURE 27. OIL DIPSTICK

OIL LEVEL—The oil level should be checked after every eight (8) hours of operation. Change oil every 200 hours or once a season.

TYPE OF OIL—Use Type A or F Automatic Transmission oil. The capacity of the unit is approximately 5 quarts. The hydrostatic transmission and the two speed rear axle share the same oil.

NOTE

Only check the oil level when the transmission is cold.

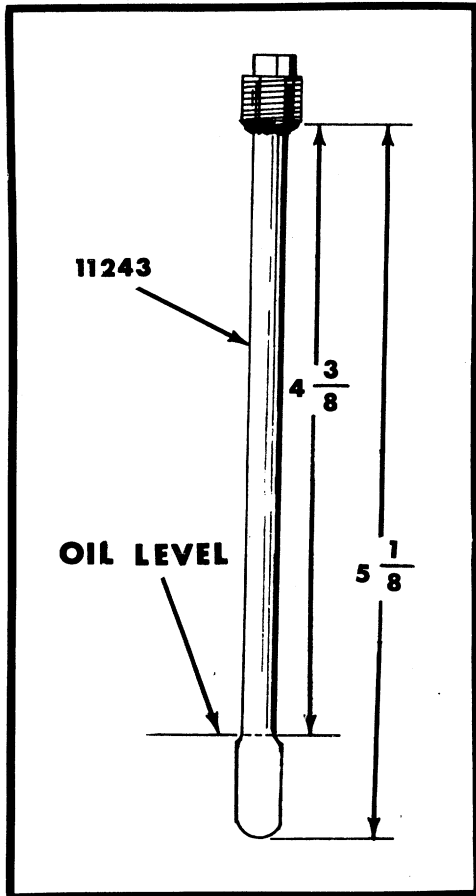


FIGURE 28. OIL DIPSTICK

3 POWER TAKE OFF (REAR)

Sealed—Requires no further lubrication

GREASE FITTINGS

The following grease fittings should be lubricated every 25 hours with an automotive multi-purpose grease:

4 DECK PIVOT BAR

2 fittings—one each side of the tractor

5 STEERING GEAR

1 fitting—center of tractor

6 AXLE PIVOT

1 fitting—center of tractor

7 KING PIN

2 fittings—one each side of the tractor

8 WHEEL BEARINGS

2 fittings—one each side of the tractor

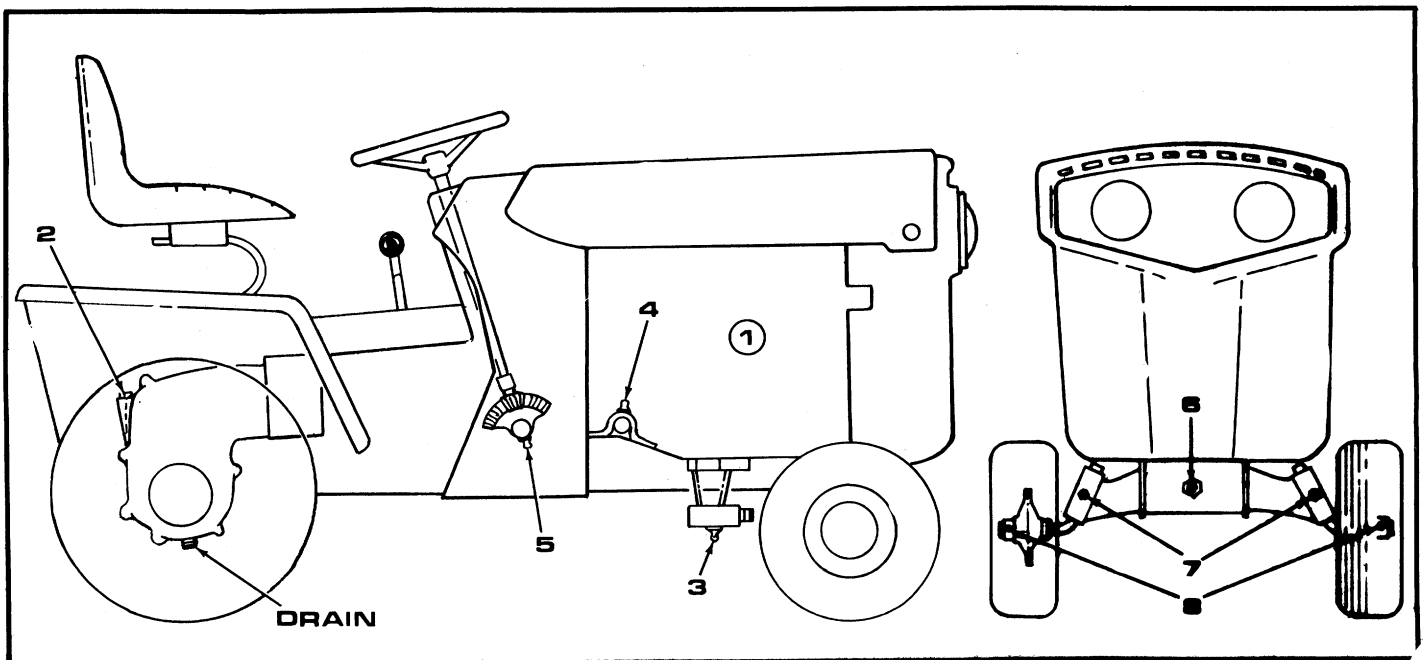


FIGURE 29. LUBRICATION CHART

IF YOU WRITE TO US ABOUT THIS ARTICLE OR
IF YOU ORDER REPLACEMENT PARTS ALWAYS
MENTION THIS STOCK AND MODEL NUMBER

STOCK No. _____
MODEL No. _____

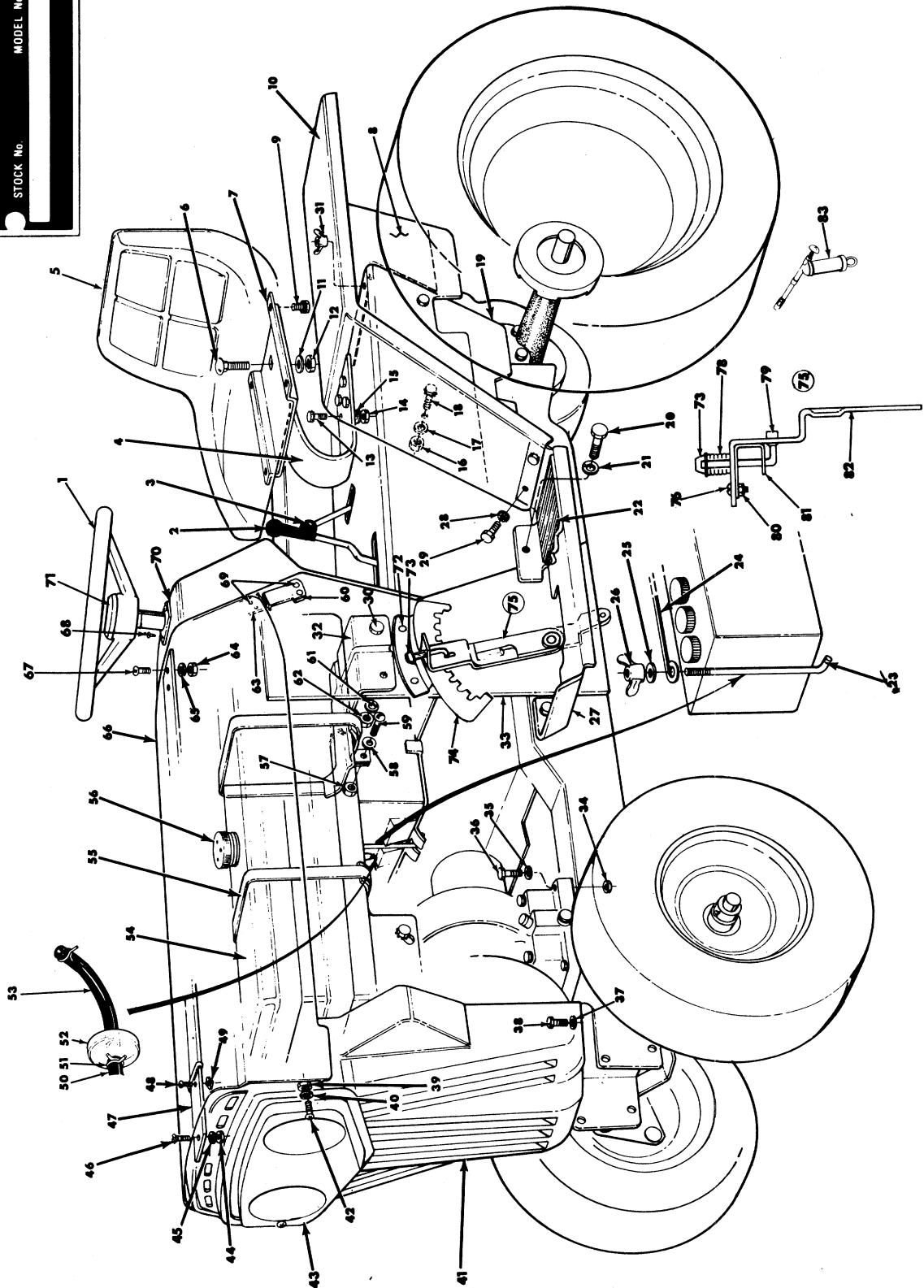


FIGURE 30. LEFT HAND VIEW

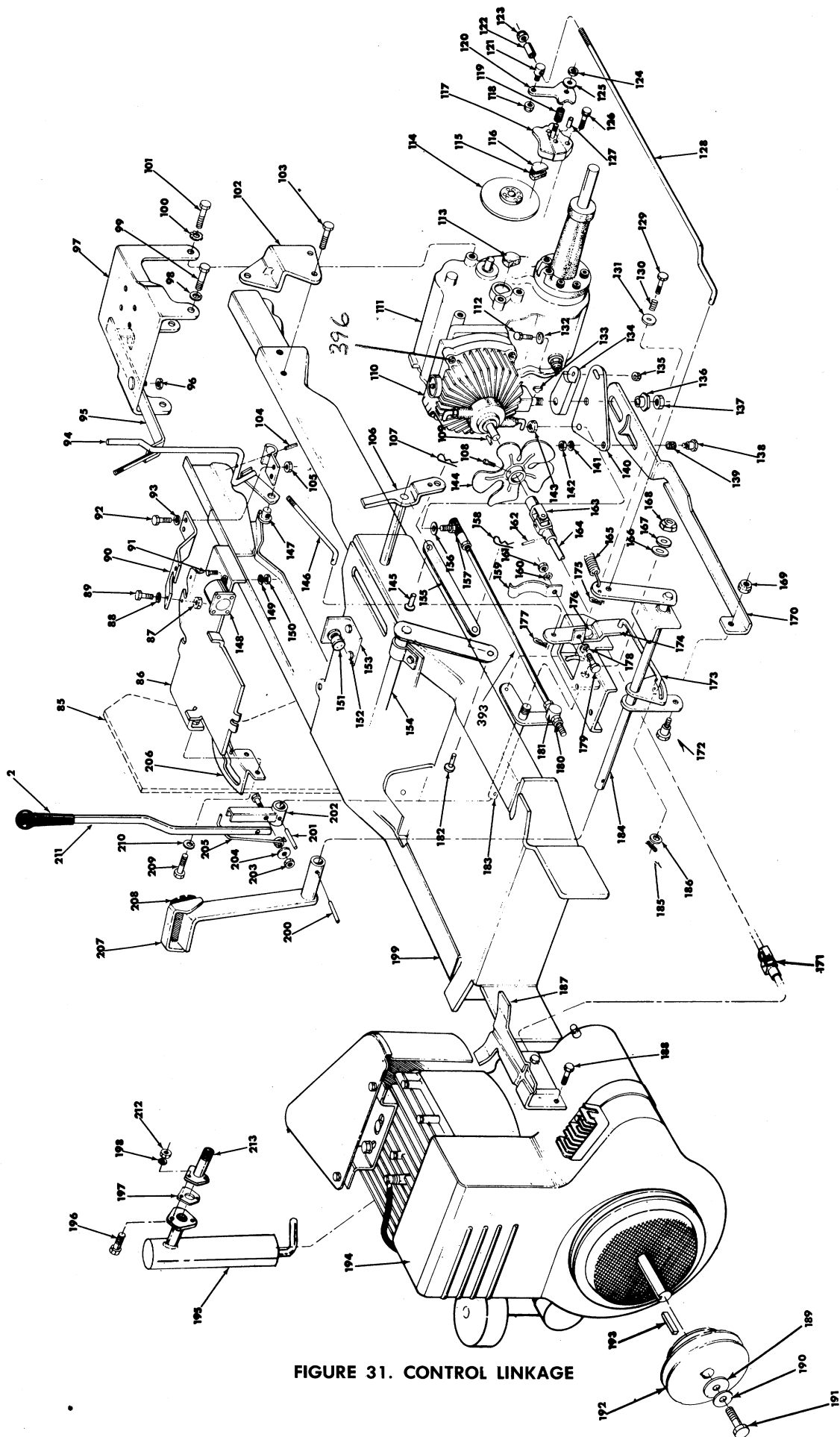


FIGURE 31. CONTROL LINKAGE

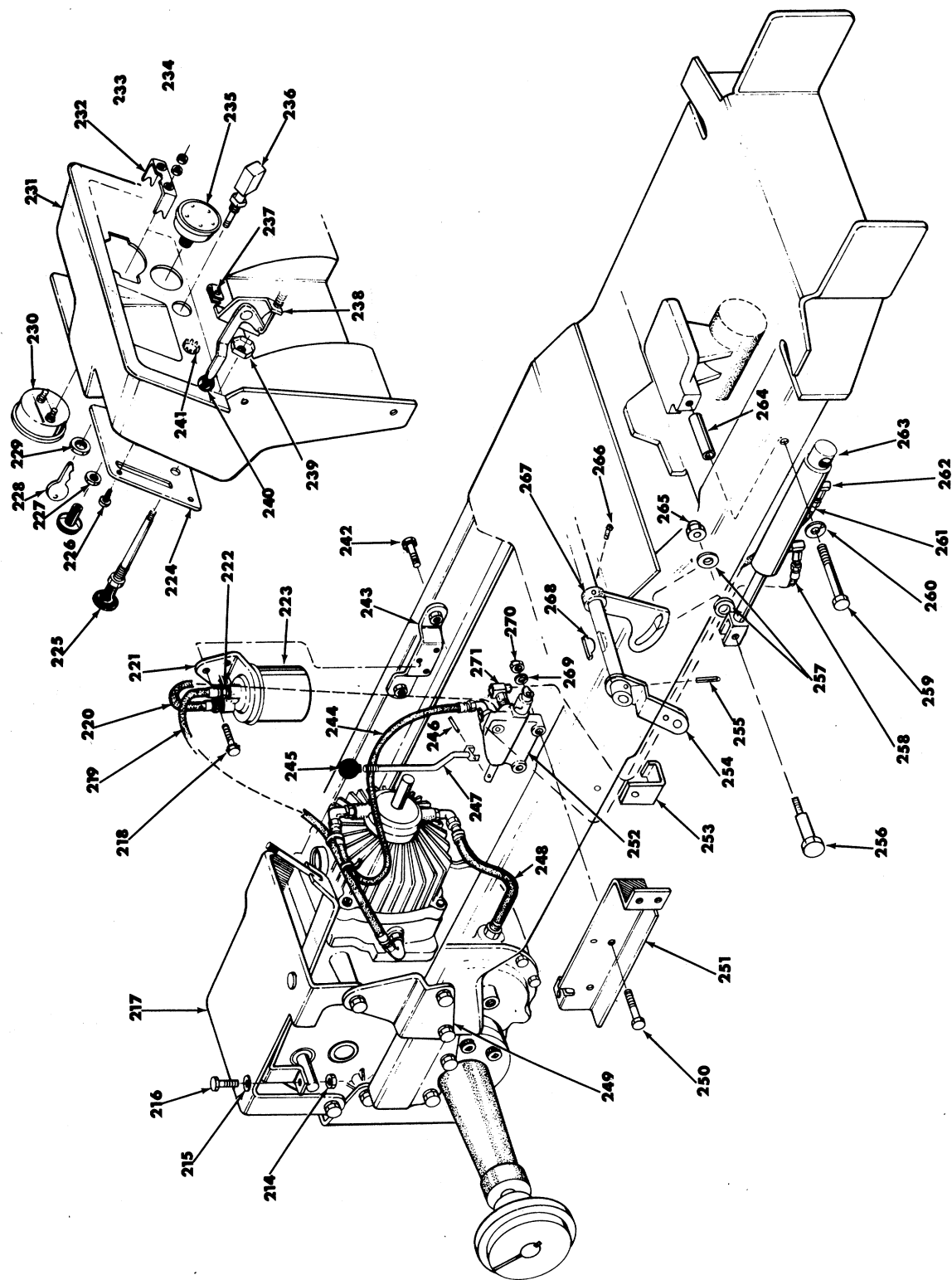


FIGURE 32. HYDRAULIC SYSTEM

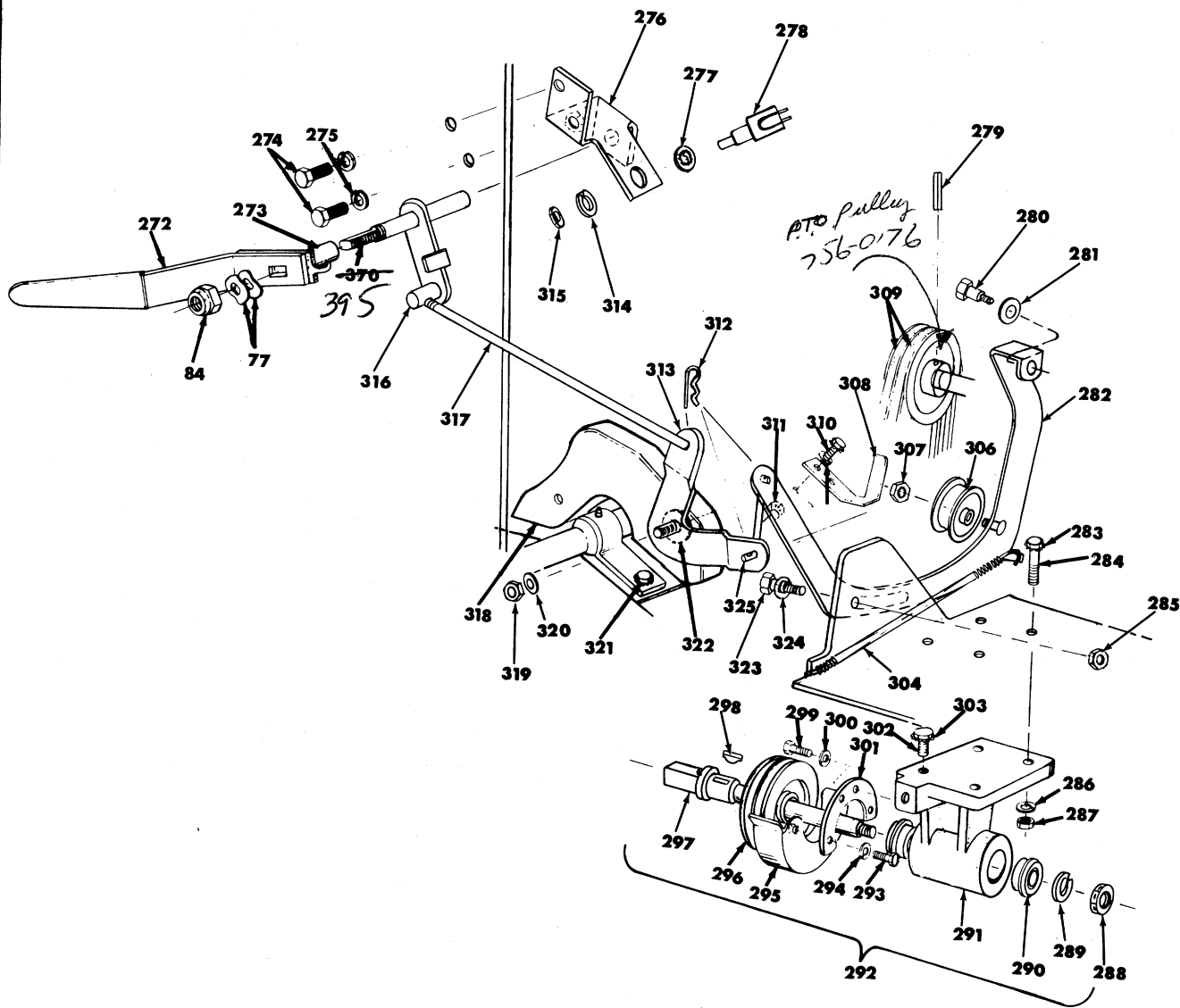


FIGURE 33. POWER TAKE OFF

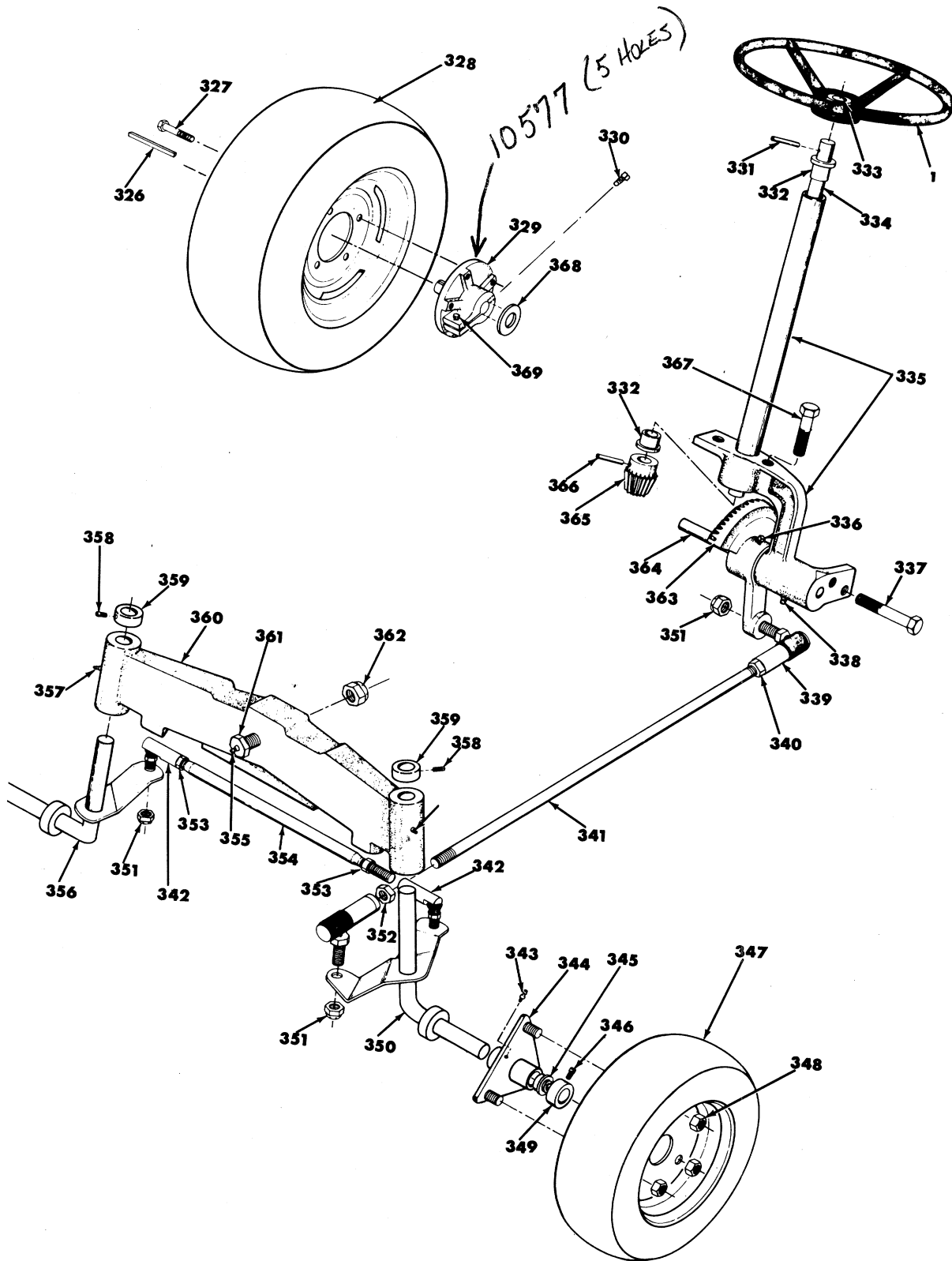


FIGURE 34. STEERING ASSEMBLY

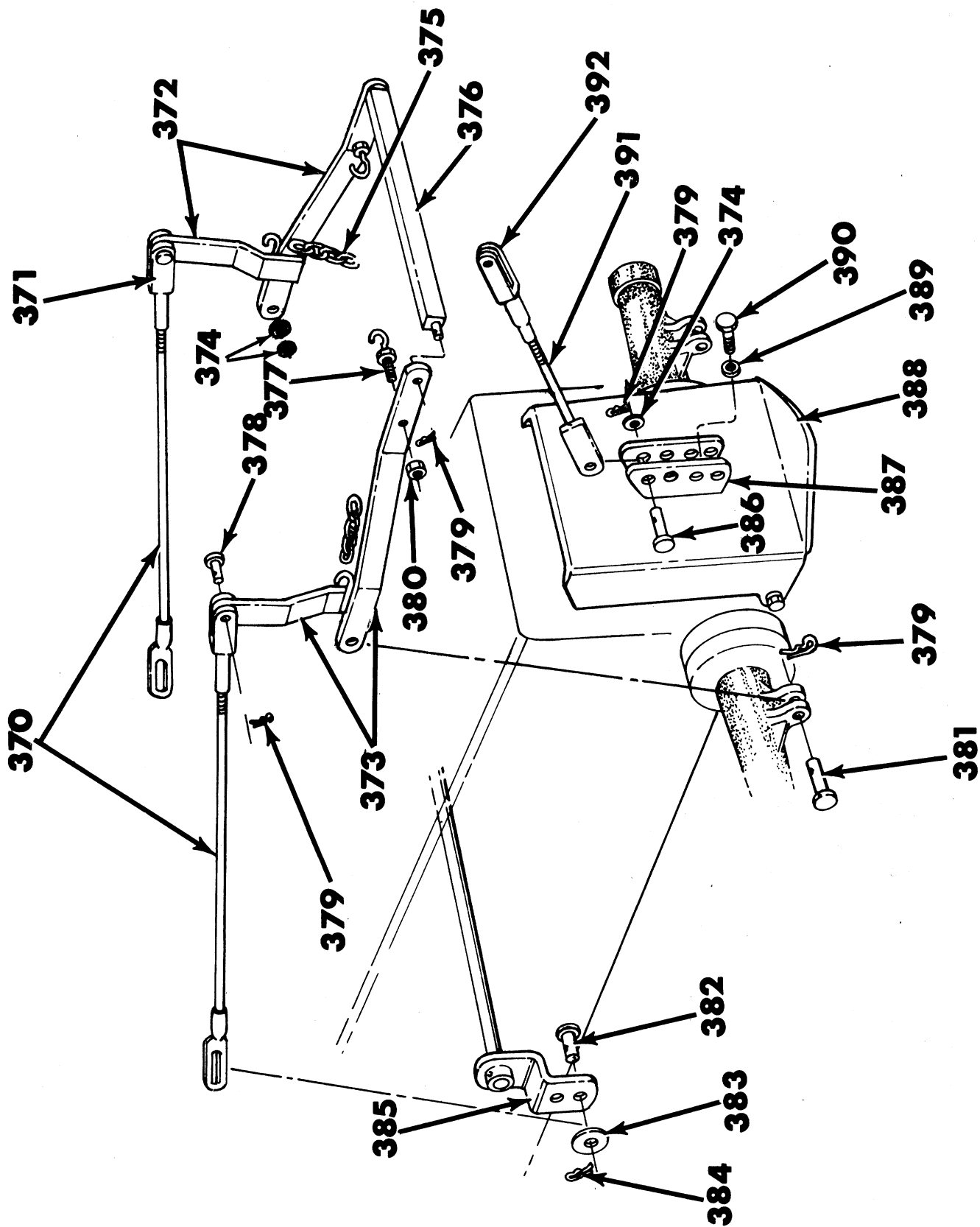


FIGURE 35. THREE POINT HITCH

PARTS LIST FOR MODEL NO. 143-990

Ref. No.	Part No.	Color Code	DESCRIPTION	New Part	Ref. No.	Part No.	Color Code	DESCRIPTION	New Part
1	723-185		Steering Wheel		57	712-287		Hex Nut—1/4-20 Thd.*	
2	720-143		Grip		58	736-329		Spring Lockwasher—1/4" Scr.*	
3	722-116		Gear Shift Knob		59	710-279		Fillister Hd. Scr.—	
4	723-146		Seat Spring					1/4-20 x 1-3/4" Lg.*	
5	757-203		Seat		60	723-186		Hood Latch	
6	710-385		Carriage Bolt—1/2-13 x 1" LG.		61	736-169		Spring Lockwasher—3/8" Scr.*	
7	10807		Seat Bracket		62	712-798		Hex Nut—3/8-16 Thd.*	
8	10927		Tool Tray Assy.		63	9575		Hood Catch	
9	710-209		Sems Hex Hd. Cap Scr.—		64	712-287		Hex Nut—1/4-20 Thd.*	
			3/8-16 x 5/8" Lg.		65	736-329		Spring Lockwasher—1/4" Scr.*	
10	10739—459		Fender Assy.—L.H.		66	9525—459		Hood	
	10740—459		Fender Assy.—R.H. (Not Shown)		67	710-166		Truss Hd. Mach. Scr.—	
11	736-921		Spring Lockwasher—1/2 Screw					1/4-20 x 1-1/8" Lg.*	
12	712-204		Elastic Stopnut—1/2-13 Thd.		68	710-473		Truss Hd. Mach. Scr.	
13	710-198		Sems Hex Hd. Cap Scr.—					# 10-24 x 1/2" Lg.*	
			5/16-18 x 3/4" Lg.*		69	728-111		Pop Rivet SD 44B5	
14	712-267		Hex Nut—5/16-18 Thd.*		70	10706		Steering Tube Hole Cover	
15	736-170		Spring Lockwasher—5/16 Screw*		71	723-188		Steering Wheel Cap	
16	712-287		Hex Nut—1/4-20 Thd.*		72	710-216		Hex Hd. Cap Scr.—	
17	736-329		Spring Lockwasher—1/4 Scr.*					3/8-16 x 3/4 Lg.*	
18	710-289		Hex Hd. Cap Scr.—		73	726-110		Push Cap	
			1/4-20 x 1/2" Lg.*		74	11336		Index Brkt.—L.H.	
19	10743		Rear Frame Cover		75	11333		Lift Pre-set Brkt. Assy.	
20	710-216		Hex Hd. Cap Scr.—		76	710-399		Truss Sems Scr.	
			3/8-16 x 3/4" Lg.*					# 10-24 x 1/2 Lg.*	
21	736-169		Spring Lockwasher—3/8 Scr.*		77	736-182		Wave Washer	
22	723-215		Foot Pad		78	732-165		Spring	
23	711-284		Battery Hold Down Stud		79	11335		Locking Rod	
24	711-278		Battery Hold Down Rod		80	712-121		Sq. Nut # 10-24 Thd.*	
25	736-173		Flat Washer		81	11343		Locking Rod Guide	
26	712-109		Wing Nut—1/4-20 Thd.*		82	11334		Lift Brkt. Per-set	
27	10745		Foot Pad Assy.—L.H.		83	727-143		Grease Gun	
	10744		Foot Pad Assy.—R.H. (Not Shown)		84	712-204		Elastic Stop Nut—1/2-13 Thd.*	
28	736-222		External Lockwasher—1/4" Scr.*		85	10684		Side Plate—R.H.	
29	710-289		Hex Hd. Cap Scr.—		86	10681		Steering Tube Support Brkt. Assy.	
			1/4-20 x 1/2 Lg.*		87	712-798		Hex Nut—3/8-16 Thd.*	
30	710-216		Hex Hd. Cap Scr.—		88	736-169		Spring Lockwasher—3/8 Scr.*	
			3/8-16 x 3/4" Lg.*		89	710-253		Hex Hd. Cap Scr.—	
31	712-109		Wing Nut—1/4-20 Thd.*					3/8-16 x 1" Lg.*	
32	10726		Gas Tank Bracket—Rear		90	10683		Selector Lever Support Bracket	
33	10685		Side Plate—L.H.		91	710-258		Hex Hd. Cap Scr.—	
34	712-798		Hex Nut—3/8-16 Thd.*					1/4-20 x 5/8" Lg.*	
35	736-169		Spring Lockwasher—3/8 Scr.*		92	710-258		Hex Hd. Cap Scr.	
36	710-347		Hex Hd. Cap Scr.—					1/4-20 x 5/8" Lg.*	
			3/8-16 x 1-3/4 Lg.*		93	736-329		Spring Lockwasher—1/4" Scr.*	
37	736-169		Spring Lockwasher—3/8 Scr.*		94	10692		Selector Lever Assy.	
38	710-253		Hex Hd. Cap Scr.—		95	10713		Shift Lever Assy.	
			3/8-16 x 1" Lg.*		96	712-107		Hex Center Lock Nut—1/4-20 Thd.	
39	712-287		Hex Nut—1/4-20 Thd.*		97	10675		Seat Bracket Assy.	
40	736-329		Spring Lockwasher—1/4" Scr.*		98	736-114		Internal Lockwasher—1/2" Scr.*	
41	719-139		Grille		99	710-493		Hex Hd. Cap Scr.—	
42	710-346		Oval Hd. Scr.—					1/2-13 x 1" Lg.*	
			1/4-20 x 1-1/2" Lg.*		100	736-114		Internal Lockwasher—1/2" Scr.	
43	9516—459		Bezel Head Lamp		101	710-493		Hex Hd. Cap Scr.—	
44	712-287		Hex Nut—1/4-20 Thd.*					1/2-13 x 1" Lg.*	
45	736-329		Spring Lockwasher—1/2 Scr.*		102	10678		Axle Support—L.H.	
46	710-350		Counter Sunk Flat Hd. Scr.—		103	710-493		Hex Hd. Cap Scr.—	
			1/4-20 x 1" Lg.*					1/2-13 x 1" Lg.	
47	9576		Grille Brace		104	715-247		Spirol Pin	
48	710-473		Truss Hd. Mech. Scr.		105	712-287		Hex Nut—1/4-20 Thd.*	
			# 10-24 x 1/2 Lg.*		106	11337		Lift Arm Shaft Assy.	
49	712-425		Sq. Nut # 10-24 Thd.*		107	714-117		Hair Pin	
50	723-153		Gas Hose—		108	710-356		Sq. Hd. Set Scr.—	
			1/2" O.D. x 1/4" I.D. x 10-1/2" Lg.*					5/16-18 x 1/2" Lg.*	
51	723-157		Gas Hose Clamp 1/2" O.D.		109	714-388		Hi-Pro Key # 506	
52	723-154		Gas Line Filter		110	717-168		Hydrostatic Unit—Complete	
53	723-247		Gas Hose—		111			Transaxle—Complete	
			1-1/2" O.D. x 1/4" I.D. 3" Lg.		112	710-253		Hex Hd. Cap Scr.—3/8-16 x 1" Lg.*	
54	723-249		Gas Tank		113	15-1154-0163		Friction Pad	
55	10852		Gas Tank Strap					(Glued in Transaxle Housing)	
56	723-155		Gas Gauge 5 7/8" Lg.		114	761-0142		Brake Disc Assy.	

HH-05-03034

PARTS LIST FOR MODEL NO. 143-990

Ref. No.	Part No.	Color Code	DESCRIPTION	New Part	Ref. No.	Part No.	Color Code	DESCRIPTION	New Part
115	15-1154-0163		Friction Pad		182	711-310		Clevis Pin—1/2 Dia. x 1-3/8 Lg.	
116	03-1090-0001		Back-up Disc		183	11304		Control Shaft Assy.	
117	761-139		Caliper Disc Brake Assy.		184	10727		Brake Shaft Assy.	
118	712-429		Elastic Stop Nut—5/16-18 Thd.		185	714-101		Int. Hair Pin	
119	06-1029-0000		Spring		186	736-300		Flat Washer	
121	711-471		Ferrule (Brake Rod)		187	10725		Gas Tank Brkt.—Front	
122	732-274		Spring (Brake Rod)		188	710-198		Sems Hex Hd. Cap Scr.—	
123	712-430		Elastic Stop Nut—3/8-16 Thd.					5/16-18 x 3/4" Lg.*	
126	710-216		Hex Hd. Cap Scr.—		189	736-133		Flat Washer*	
127			3/8-16 x 3/4 Lg.*		190	736-171		Spring Lockwasher—	
128	711-475		Brake Rod					7/16" Scr.*	
129	710-442		Hex Hd. Cap Scr.—		191	710-348		Hex Hd. Cap Scr.—	
			5/16-18 x 1-1/2 Lg.*					7/16-20 x 3/4" Lg.*	
130	732-108		Compression Spring		192	10576		Front Pulley	
131	7387		Flat Washer		193	714-119		Sq. Key—1/4 x 3/4" Lg.	
132	736-148		External Lockwasher		194	—		Engine	
133	714-131		Hi-Pro Key # 504		195	1172 6		Muffler	
134	11265		Pintle Control Lever		196	710-152		Hex Hd. Cap Scr. 3/8-24 x 1 Lg.*	
135	712-375		Hex Center Lock Nut—		197	721-127		Gasket	
			3/8-16 Thd.*		198	736-169		Lockwasher 3/8	
136	711-473		Slide Nut		199	10893		Frame Assy.	
137	712-248		Hex Elastic Stop Nut—		200	715-107		Spirol—5/16 Dia. x 1-3/8" Lg.*	
			3/8-16 Thd.		201	715-107		Spirol Pin—5/16 Dia. x 1-3/8" Lg.*	
138	710-491		Socket Hd. Shoulder Bolt—		202	10841		Handle Bracket Assy.	
			5/16 x 1/2 Lg.*		203	712-324		Elastic Lock Nut—1/4-20 Thd.*	
139	741-154		Needle Bearing		204	736-463		Flat Washer—1/4 Scr.*	
140	11266		Control Adj. Plate		205	732-231		Torsion Spring	
141	736-329		Spring Lockwasher—1/4 Scr.*		206	10908		Control Index Brkt.	
142	712-107		Hex Nut—1/4-20 Thd.*		207	10714		Brake Pedal Assy.	
143	712-116		Elastic Stop Nut—3/8-24 Thd.*		208	10614		Pedal Pad	
144	10695		Fan Assy.		209	710-216		Hex Hd. Cap Scr.—	
145	711-308		Clevis Pin					3/8-16 x 3/4" Lg.*	
146	711-474		Parking Brake Adj. Rod		210	736-169		Spring Lockwasher—3/8 Scr.*	
147	711-288		Ferrule		211	10734		Control Lever	
148			Solenoid (See Figs. 36 & 37)		212	712-241		Hex Nut 3/8-24 Thd.*	
149	736-329		Spring Lockwasher—1/4 Scr.*		213	11737		Exhaust Pipe	
150	712-287		Hex Nut—1/4-20 Thd.*		213A	712-250		Nut for Exhaust Pipe	
151	725-277		Safety Switch		214	712-107		Hex Center Lock Nut—1/4-20 Thd.*	
152	710-322		Sems Hex Hd. Scr.—		215	736-463		Flat Washer—1/4 Scr.*	
			5/16-18 x 1" Lg.*		216	710-106		Hex Hd. Cap Scr.—	
153	10710		Switch Brkt.					1/4-20 x 1-1/4" Lg.*	
154	9457		Pivot Bar Assy.		217	10675		Seat Brkt. Assy.	
155	9479		Lift Bar		218	710-322		Sems Hex Hd. Cap Scr.—	
156	712-922		Hex Elastic Stop Nut—					5/16-18 x 1" Lg.*	
			1/2-20 Thd.		219	727-165		Filter Return Hose	
157	723-0156		Drag Link End		220	727-184		Valve to Filter Hose	
158	714-117		Hair Pin		221	727-163		Filter Base	
159	9521		Height Adj. Spring		222	727-173		Pipe Adapter	
160	736-329		Spring Lockwasher—1/4 Scr.*					(9/16-18 JIC to 1/2-14 NPTE)	
161	712-107		Hex Nut—1/4-20 Thd.*		223	727-162		Fram—Filter Assy. PH-16	
162	715-114		Spirol Pin—1/4 Dia. x 1-1/2 Lg.*		224	9528		Bezel—Instrument Panel	
163	717-171		Universal Joint (Dr. Shaft to Hyd.)		225	746-129		Choke Control	
164	10736		Drive Shaft		226	710-351		Phil. Hd. Scr. # 10—	
165	732-121		Brake Return Spring					Type Z x 1/2" Lg.*	
166	736-116		Washer		227	—		Part of Ref. No. 235	
167	736-116		Washer		228	725-201		Starter Key	
168	712-221		Elastic Stop Nut—5/8-18 Thd.*		229	—		Part of Ref. No. 235	
169	712-429		Elastic Stop Nut—5/16-18 Thd.*		230	725-119		Ammeter	
170	10711		Control Slide		231	10850		Dash Panel	
171	717-170		Universal Joint (Dr. Shaft to Engine)		232	—		Part of Ref. No. 230	
172	711-118		Shoulder Bolt—Special		233	—		Part of Ref. No. 230	
173	10698		Parking Brake Rod—Front		234	—		Part of Ref. No. 230	
174	10709		Parking Brake Crank		235	725-267		Key Switch	
175	714-101		Int. Hair Pin		236	725-202		Light Switch	
176	710-373		Shoulder Bolt		237	712-526		Speed Nut	
177	714-101		Int. Hair Pin		238	746-130		Throttle Control	
178	—		Part of Ref. No. 179		239	—		Part of Ref. No. 225	
179	710-289		Sems Hex Hd. Cap Scr.—		240	722-118		Throttle Control Knob	
			1/4-20 x 1/2" Lg.*		241	726-119		Push Button	
180	712-711		Hex Jam Nut—3/8-24 Thd.*		242	710-198		Sems Hex Hd. Cap Scr.—	
181	711-471		Ferrule (Speed Control)					5/16-18 x 3/4" Lg.*	

PARTS LIST FOR MODEL NO. 143-990

Ref. No.	Part No.	Color Code	DESCRIPTION	New Part	Ref. No.	Part No.	Color Code	DESCRIPTION	New Part
243	10707		Filter Bracket Assy.		299	710-289		Hex Hd. Mech. Scr.—	
244	727-167		Pump to Valve Hose					1/4-20 x 1/2" Lg.*	
245	722-116		Gear Shift Knob		300	736-329		Spring Lockwasher—1/4 Scr.*	
246	715-247		Roll Pin—3/16 x 1"		301	11327		Belt Guard Mtg. Brkt.	
247	11331		Lift Handle Assy.		302	710-937		Hex Hd. Cap Scr.—	
248	727-166		Axle to Pump Hose					3/8-16 x 2-1/2" Lg.*	
249	10677		Axle Support—R.H.		303	736-148		External Lockwasher—3/8 Scr.*	
250	710-106		Hex Hd. Cap Scr.—		304	732-199		Extension Spring	
			1/4-20 x 1-1/4" Lg.*		306	756-183		Flat Idler Pulley	
			Lift Valve Brkt. Assy.		307	712-375		Hex Center Locknut—	
251	11341		Lift Valve Hyd.					3/8-16 Thd.*	
252	727-188		Hose Clamp		308	9476		P.T.O. Belt Trapout	
253	11330		Lift Arm Assy.—R.H.		309	754-165		V Belt (Matched Set)	
254	11323		Spirol Pin		310	710-211		Sems Hex Hd. Cap Scr.—	
255	715-118		5/16 Dia. x 1-3/8" Lg.					1/4-20 x 3/4" Lg.*	
			Shoulder Scr.		311	712-107		Hex Lock Nut—1/4-20 Thd.*	
256	738-126		Flat Washer*		312	714-101		Int. Hair Pin	
257	736-179		Hose Valve to Cyl.		313	11344		Idler Crank	
258	727-183		(Rear Port 26" Lg.)		314	—		Part of Ref. No. 278	
			Hex Hd. Cap Scr.—		315	—		Part of Ref. No. 278	
259	710-496		1/2-13 x 4-1/2" Lg.*		316	711-288		Ferrule	
			Spring Lockwasher—1/2 Scr.*		317	711-293		P.T.O. Clutch Rod	
260	736-921		Hose Valve to Cyl.		318	11322		Clutch Pivot Brkt.	
261	727-182		(Front Port—31-1/2" Lg.)		319	712-130		Elastic Stop Nut—3/8-16 Thd.*	
			90° Adapter (Cyl. Ports)		320	736-300		Flat Washer—3/8 Scr.*	
262	727-174		Hyd. Cylinder		321	710-198		Sems Hex Hd. Cap Scr.—	
263	727-159		Cyl. Spacer					5/16-18 x 3/4" Lg.*	
264	750-157		Hex. Elastic Stop Nut—		322	736-860		Flat Washer*	
265	712-130		3/8-16 Thd.*		323	738-143		Shoulder Scr.	
			Sq. Hd. Set Scr.—		324	736-179		Flat Washer*	
266	710-356		5/16-18 x 1/2" Lg.*		325	11570		P.T.O. Clutch Rod	
			Hyd. Lift Lever Assy.		326	714-120		Sq. Key—1/4 x 3" Lg.*	
267	11339		Hi-Pro Key #808—		327	710-470		Wheel Lug Bolts—	
268	714-134		1/4 Thk. x 1" Dia.*					1/2-20 x 1-1/2 Lg.*	
			Spring Lockwasher—1/4 Scr.*		328	734-341		Rear Wheel Assy.	
269	736-329		Hex Nut—1/4-20 Thd.*					27.0 x 9.50 (Complete)**	
270	712-287		Flare Adapter			734-537		Rim Only	
271	727-187		P.T.O. Handle Assy.			734-397		Tire Only 27.0 x 9.50	
272	9439		Sleeve		329	719-161		Rear Wheel Hub	
273	711-313		Hex Hd. Cap. Scr.—		330	710-123		Sq. Hd. Set Scr.—3/8-16 Thd.*	
274	710-258		1/4-20 x 5/8" Lg.*		331	715-101		Spirol Pin—1/4 x 2-1/2 Lg.*	
			Spring Lockwasher—1/4 Scr.*		332	748-157		Steering Tube Bushing	
275	736-329		P.T.O. Handle Support Assy.		333	723-188		Steering Wheel Cap	
276	11325		Part of Ref. No. 278		334	9535		Steering Rod	
277	—		Safety Switch		335	10851		Steering Tube Segment Assy.	
278	725-277		Spirol Pin—1/4 Dia. x 1-1/2" Lg.		336	710-344		Sq. Hd. Set Scr.—	
279	715-114		Shoulder Scr.					5/16-18 x 3/4 Lg.*	
280	738-163		Flat Washer*		337	710-253		Hex. Hd. Cap Scr.—	
281	736-860		P.T.O. Clutch Idler Brkt. Assy.					3/8-16 x 1" Lg.*	
282	11434		External Lockwasher—3/8 Scr.*		338	737-479		Grease Fitting	
283	736-148		Hex Hd. Cap Scr.—		339	723-179		Drag Link Ends	
284	710-344		3/8-16 x 1-1/2" Lg.*		340	712-922		Hex. Nut—1/2-20 Thd.*	
			Hex Center Lock Nut—		341	711-455		Drag Link	
285	712-375		3/8-16 Thd.*		342	723-156		Tie Rod Ends	
			Spring Lockwasher—3/8" Scr.*		343	737-108		Grease Fitting	
286	736-169		Hex Nut—3/8-16 Thd.*		344	10457		Front Wheel Hub Assy.	
287	712-798		Hex Elastic Jam Nut—		345	741-141		Ball Bearing	
288	712-221		5/8-18 Thd.*		346	710-356		Sq. Hd. Set Scr.—	
			Spring Lockwasher—					5/16-18 x 1/2" Lg.*	
289	736-158		5/8 Scr.*		347	734-525		Front Wheel Assy.	
			Ball Bearing with Snap Ring					(Complete) 16.0 x 6.50-8**	N
290	741-161		P.T.O. Housing			9262		Rim Only	
291	717-219		P.T.O. Housing Assy.			734-526		Tire Only 16.0 x 6.50-8	N
292	717-218		Hex Hd. Mech. Scr.—		348	712-193		Lug Nut—3/8-24 Thd.	
293	710-289		1/4-20 x 1/2" Lg.*		349	748-386		Axle Collar	
			Spring Lockwasher—		350	10718		Front Axle Assy.—L.H.	
294	736-329		1/4 Scr.*		351	712-200		Elastic Stop Nut—1/2-20 Thd.*	
			Belt Guard Assy.		352	712-922		Hex Nut—1/2-20 Thd.*	
295	11328		P.T.O. Pulley		353	712-711		Hex Jam Nut—3/8-24 Thd.*	
296	756-177		P.T.O. Shaft		354	711-454		Tie Rod	
297	738-156		Hi-Pro. Key		355	737-108		Grease Fitting	
298	714-113								

PARTS LIST FOR MODEL NO. 143-990

Ref. No.	Part No.	Color Code	DESCRIPTION	New Part	Ref. No.	Part No.	Color Code	DESCRIPTION	New Part
356	10717		Front Axle Assy.—R.H.		374	7387		Flat Washer .640 ID*	
357	737-108		Grease Fitting		375	713-148		Chain—20" Long	
358	710-356		Sq. Hd. Set Scr.— 5/16-18 x 1/2" Lg.*		376	10996		Draw Bar Assembly	
359	748-386		Axle Collar		377	10988		Chain Hook	
360	10587		Front Axle Support		378	711-225		Clevis Pin	
361	710-335		Pivot Bolt		379	714-117		Cotter Hairpin	
362	712-205		Elastic Stop Nut—3/4-10 Thd.		380	712-342		Hex Jam Nut 3/8-16 Thd.*	
363	719-122		Gear Segment		381	711-577		Clevis Pin 5/8 x 2.65 Lg.	
364	9563		Gear Segment Shaft		382	711-308		Clevis Pin	
365	719-121		Pinon Gear		383	736-179		Flat Washer 17/32 ID*	
366	715-101		Spirol Pin—1/4 x 1-1/2 Lg.*		384	714-109		Cotter Hairpin	
367	710-216		Hex. Hd. Cap Scr.— 3/8-16 x 3/4" Lg.*		385	10716		Lift Arm Assembly	
368	736-163		Flat Washer*		386	711-174		Clevis Pin	
369	710-489		Hex. Hd. Cap Scr.— 1/2-13 x 1-1/2 Lg.*		387	10993		Upper Hitch Bracket	
370	10729		Lift Pull Rod Assembly		388	10679		Hitch Plate Assembly	
371	10991		Adjustment Clevis Assembly		389	736-169		Spring Lockwasher 3/8 Scr.*	
372	10986		Draft Bar Assembly		390	710-216		Hex Head Cap Screw 3/8-16 x 3/4 Lg.*	
373	10985		Draft Bar Assembly		391	10994		Clevis Screw Assembly	
					392	10991		Adjustment Clevis Assembly	
					393	710-454		Control Rod (Threaded both ends)	

** When ordering service parts include all the information on the side wall of the tire such as the size and brand name.

* For faster service obtain standard nuts, bolts and washers locally. If these items cannot be obtained locally, order by part number and size as shown on parts list.

Power Take Off belts are matched. Always order in pairs.

(459-Mag. Flake) When ordering parts if color or finish is important, use the appropriate color code shown at left. (e.g. Mag. Flake Finish 459—9525).

The engine is not under warranty by the tractor manufacturer. If repairs or service is needed on the engine, please contact your nearest authorized engine service outlet. Check the "Yellow Pages" of your telephone book under "Engines—Gasoline."



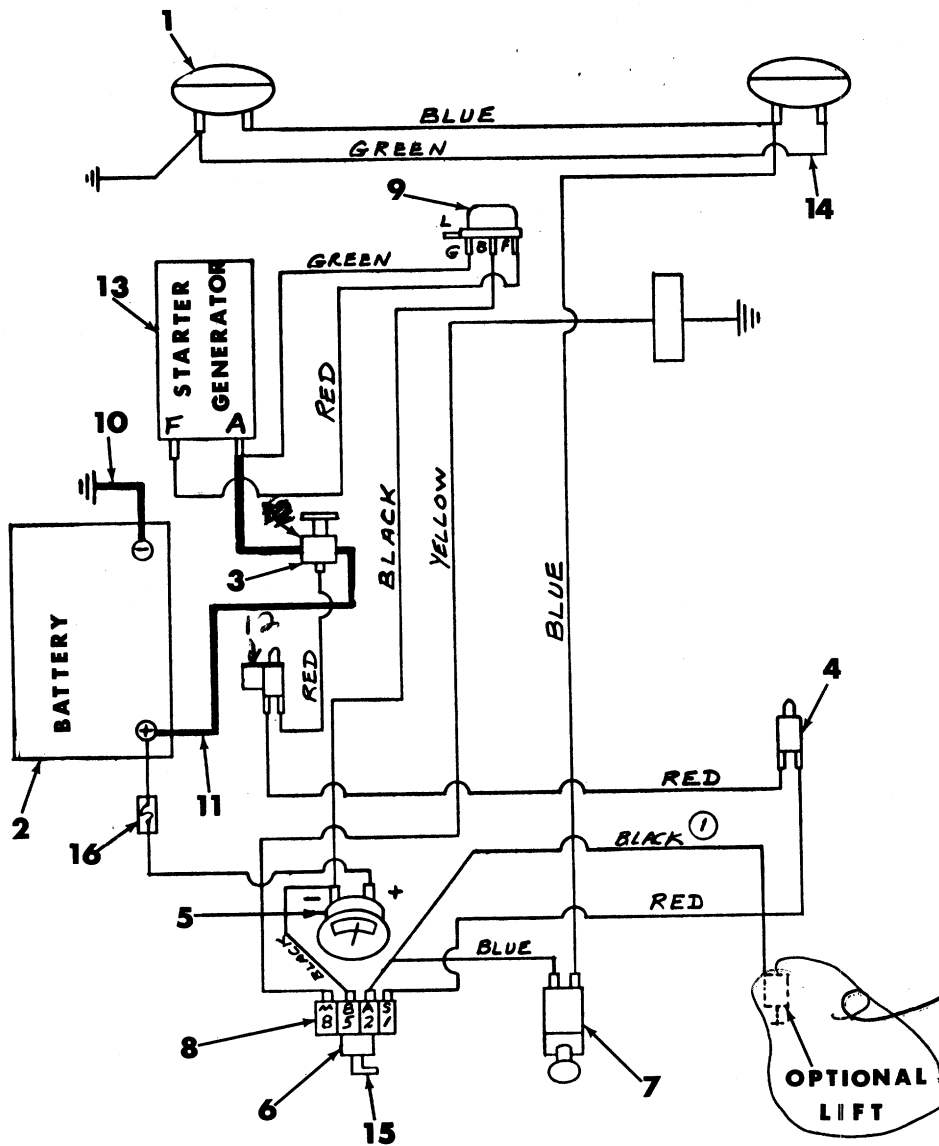


FIGURE 36. ELECTRICAL SYSTEM

PARTS LIST FOR ELECTRICAL SYSTEM

REP. NO.	Part No.	Qty.	Description
1	725-222	2	Head Light
2	725-130	1	Battery
3	725-270	1	Solenoid
4	725-277	1	Safety Switch
5	725-119	1	Ammeter
6	725-267	1	Key Switch
7	725-202	1	Light Switch
8	725-275	1	Wire Harness
126-390 9	725-120	1	Voltage Regulator
10	725-139	1	Battery Ground Wire
11	725-258	1	Bat. To Sol & Bat. To Amp. Met.
12	725-268	1	Safety Switch
13	725-144	1	Starter & Gen.
14	725-204	1	Electric Wire
15	725-201	1	Ignition Key
16	725-300	1	15 Amp Fuse
17	754-169	1	V-Belt .380 x 35-3/4" Lg.

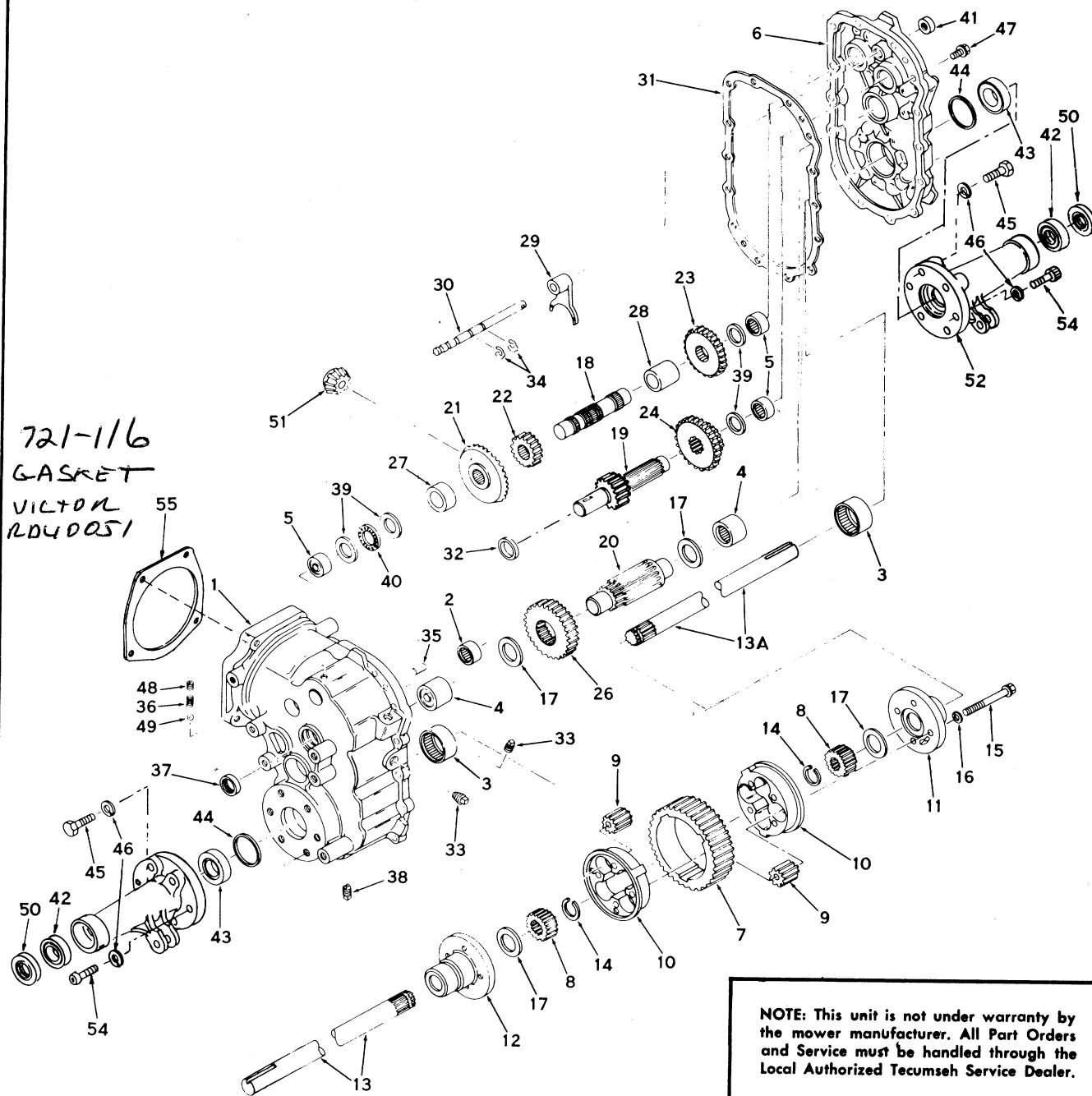


FIGURE 37. REAR AXLE MODEL 2503

NOTE: This unit is not under warranty by the mower manufacturer. All Part Orders and Service must be handled through the Local Authorized Tecumseh Service Dealer.



PEERLESS MODEL 2503

This unit is under warranty by Tecumseh Products Company. Parts and Service are available through all Tecumseh, Lauson Power Products Service Dealers. Check the "Yellow Pages" of your telephone directory under "Engines—Gasoline."

PARTS LIST FOR REAR AXLE MODEL 2503

Ref. No.	Part No.	Description
1	770060	Case Assy., Transaxle (Incl. Nos. 2 thru 5)
2	780097	Bearing, Needle
3	780098	Bearing, Needle
4	780099	Bearing, Needle
5	780100	Bearing, Needle
6	772065	Cover Assy., Transaxle (Incl. 3, 4 & 5)
7	778084	Gear, Ring
8	778085	Gear, Side
9	778086	Gear, Pinion
10	786054	Core, Body
11	774199	Carrier, Differential
12	774200	Carrier, Differential
13	774204	Axle, Left Hand
13A	774205	Axle, Right Hand
14	792062	Ring, Snap
15	792063	Screw, $\frac{3}{8}$ -16 x $3\frac{3}{8}$ Hex Hd.
16	792011	Lockwasher, $\frac{3}{8}$ "
17	780101	Washer, Thrust
18	776118	Shaft, Counter
19	776122	Shaft, Brake
20	776120	Pinion, Output
21	778087	Gear, Bevel (30 teeth)
22	778088	Gear, Spur (16 teeth)
23	778096	Gear, Spur (23 teeth)
24	778097	Gear, Cluster (20 and 27 teeth)
26	778098	Gear, Output (37 teeth)
27	786055	Spacer
28	786056	Spacer
29	784195	Fork, Shift
30	784196	Rod, Shift
31	788047	Gasket, Case and Cover
32	780005	Spacer
33	792010	Plug, Pipe
34	792064	Ring, Snap
35	786026	Pin, Dowel
36	792003	Spring
37	788008	Seal, Oil
38	792019	Plug, Magnetic drain
39	780045	Washer, Thrust
40	780012	Bearing, Thrust
41	788034	Seal, Oil
42	780103	Bearing, Ball
43	780104	Bearing, Thrust
44	788048	Seal, Square Cut
45	792065	Screw, $\frac{1}{2}$ -13 x $1\frac{1}{2}$ Hex Hd.
46	792066	Lockwasher, $\frac{1}{2}$ "
47	792067	Screw, 5/16-18 x 1Thrd. Forming Hex Hd.
48	792068	Screw, $\frac{1}{4}$ -20 x $\frac{1}{2}$ Set
49	792001	Ball, Steel
50	788049	Seal, Oil
51	778093	Pinion, Bevel
52	782039	Housing, Axle
53	782040	Housing, Axle
54	792069	Screw, $\frac{1}{2}$ -13 x $1\frac{1}{2}$ Allen Hd. Cap
55	788050	Gasket

NOTE: This unit is not under warranty by the mower manufacturer. All Part Orders and Service must be handled through the Local Authorized Tecumseh Service Dealer.



PEERLESS MODEL 2503

This unit is under warranty by Tecumseh Products Company. Parts and Service are available through all Tecumseh, Lauson Power Products Service Dealers. Check the "Yellow Pages" of your telephone directory under "Engines—Gasoline."

BATTERY WARRANTY CERTIFICATE

The following general warranty policy applies to all batteries sold by IBMA members using this warranty. The nationwide warranty applies only to batteries bearing the IBMA seal of approval.

All new batteries sold by IBMA members carry a warranty against faulty material or workmanship for 90 days from date of purchase. A faulty battery is to be adjusted, repaired or replaced with a new battery by an IBMA member, jobber or dealer only, or the warranty becomes void. An IBMA type battery that is faulty within the 90 day period is to be repaired or replaced with a new battery F.O.B. any IBMA factory supplier or any IBMA authorized dealer, without charge.

Your battery carries a further warranty on a pro-rata adjustment basis covering the number of months deter-

mined by the class of service and type of battery. In determining the exchange cost of a new battery, charges will be made for months of service used and the warranty is valid to the original purchaser only.

IBMA approved factory suppliers, as well as all IBMA authorized dealers, are to honor this Warranty. If your IBMA approved battery carries the IBMA seal of approval, this Warranty is to be honored by dealers handling IBMA approved batteries everywhere. (Independent Battery Manufacturers Association, Inc.)

Failures in service that are caused by fire, collision, freezing, abuse, faulty electrical equipment or the use of a battery of a group size smaller or specifications lower than the original battery are not covered by this policy.

BATTERY MANUFACTURER MEMBERSHIP LIST

ALABAMA

Birmingham
Southern Bty.
Yocam Batteries
Mobile
Yocam Batteries
Montgomery
Ebco Battery

ALASKA

Anchorage
Alaska Husky Bty.

ARKANSAS

Hot Springs
Red Diamond Bty.

CALIFORNIA

Los Angeles
Estee Battery
Laher Bty. Prod.
Oakland
Laher Bty. Prod.
Sacramento
Laher Bty. Prod.
San Francisco
Amp King Bty.
Laher Bty. Prod.
Pico Bty. Mfg.
Stockton
Stockton Battery

COLORADO

Denver
Moore Battery

D. C.

Washington
Express Bty. Div.
Leeth Brothers

FLORIDA

Fort Lauderdale
Florida Bty.
Hialeah
East Penn Mfg.
Jacksonville
Tropex Batteries
Yocam Batteries
Orlando
Yocam Batteries

Miami

Tropex Batteries
Yocam Batteries
Pensacola
Yocam Batteries
St. Petersburg
Electro Battery Co.
Tampa
Bilt-Rite Bty. Mfg.
Contract Bty. Mfg.
DeSoto Bty. & Elec.
Tropex Batteries
Yocam Batteries

GEORGIA

Albany
Ebco Battery
Atlanta
Ebco Battery
Southern Bty.
Yocam Batteries
Columbus
Ebco Battery
Contract Bty. Mfg.
Yocam Batteries

ILLINOIS

Belleville
Bell City Bty. Mfg.
Chicago
Illinois Bty. Mfg.
Universal Bty.
Volta Bty. Corp.
Peoria
Red Diamond Bty.

INDIANA

Muncie
Stout Storage Bty.

IOWA

Corydon
Voltmaster
Council Bluffs
Reliance Bty. Prod.
Des Moines
Voltmaster

KANSAS

Kansas City
American Batteries
Contract Bty. Mfg.

KENTUCKY

Whitesburg
Electro-Lite Bty.

LOUISIANA

New Orleans
Central Bty.
Reliable Bty.
Shreveport
Central Bty.

MARYLAND

Baltimore
East Penn Mfg.

MASSACHUSETTS

Watertown
Atlantic Bty.

MICHIGAN

Detroit
Batteries Mfg.
Flint
ABC Batteries
Holly
Detroit Battery
Madison Heights
C & W Lektra
Warren
G & M Battery

MINNESOTA

St. Paul
Standard Storage Bty.

MISSISSIPPI

Florence
Contract Bty. Mfg.
Jackson
Central Bty.

MISSOURI

JOPLIN
Lead Products
Maryland Heights
Electro Bty. Mfg.
Sikeston
Electro Bty.

NEW JERSEY

Atlantic City
Landis Battery

NEW MEXICO

Albuquerque
Sandia Bty. Mfg.

NEW YORK

Buffalo
East Penn Mfg.
Lockport
Great Lakes Battery

NORTH CAROLINA

Charlotte
Yocam Batteries
Thomasville
East Penn Mfg.

OHIO

Akron
Crown Battery
Cincinnati
Moore Battery
Cleveland
Crown Battery
New Castle Bty.
Columbus
Crown Battery
Fremont
Crown Battery

OREGON

Beaverton
Western Bty., Inc.
Portland
Laher Bty. Prod.

PENNSYLVANIA

Altoona
East Penn Mfg.
Erie
New Castle Bty.
Lancaster
Lancaster Bty.
Lyon Station
East Penn Mfg.
New Castle
New Castle Bty.
Philadelphia
East Penn Mfg.
Pittsburgh
Simon Bty. & Res.
Geidel Bty. Div.

RHODE ISLAND

Providence
Pilot Mfg., Inc.

SOUTH CAROLINA

Columbia
Yocam Batteries

TENNESSEE

Chattanooga
Electro-Lite Bty.
Knoxville
Southern Bty.
Memphis
Central Battery
Laher Bty. Prod.
Southern Bty.
Nashville
Electro-Lite Bty.
Southern Bty.

TEXAS

Dallas
Continental Bty.
Reliable Battery
El Paso
El Paso Bty.
Houston
Texford Bty. Co.
Reliable Battery
San Antonio
Reliable Battery

UTAH

Salt Lake City
Laher Bty. Prod.

VIRGINIA

Arlington
Express Bty. Div.
Leeth Bros.
Lynchburg
Hydrate Battery

WASHINGTON

Seattle
Laher Bty. Prod.
Spokane
Laher Bty. Prod.

CANADA

Vancouver, B. C.
Industrial Bty. &
Supply

WARRANTY

For one year from date of purchase, MTD Products Inc will replace for the original purchaser, free of charge, F.O.B. factory or authorized service firm, any part or parts found to be defective in material or workmanship. All transportation charges on parts submitted for replacement under this warranty must be paid by the purchaser. This warranty does not include replacement of parts which become inoperative through misuse, excessive use, accident, neglect, improper maintenance or alterations by unauthorized persons. This warranty does not include the engine, motor, battery, battery charger or any component parts thereof. For service on these units refer to the applicable manufacturer's warranty.

The above warranty will apply only to the original owner and will be effective only if the warranty card has been properly processed. It will not apply where the unit has been used commercially.

Warranty service is available through your local authorized service dealer or distributor. UNDER NO CIRCUMSTANCES WILL THE RETURN OF A COMPLETE UNIT BE ACCEPTED BY THE FACTORY UNLESS PRIOR WRITTEN PERMISSION HAS BEEN EXTENDED.

PARTS INFORMATION

DEFECTIVE OR MISSING PARTS must be reported to the factory immediately. Such claims must include your model number and date of purchase.

MOWER, TILLER, SNOW THROWER, TRACTOR, TRAIL BIKE AND MUD BUG PARTS

Mower, tiller, snow thrower, tractor, trail bike and mud bug parts are available through the authorized service firms listed below. All orders should specify the model number of your unit, parts numbers, de-

scription of parts and the quantity of each part required.

BRIGGS & STRATTON, TECUMSEH AND PEERLESS PARTS AND SERVICE

Briggs & Stratton, Tecumseh and Peerless parts and service should be handled by your nearest authorized engine service firm. Check the yellow pages of your telephone directory under the listing *Engines—Gasoline*, Briggs & Stratton or Tecumseh Lauson—Power Products.

A 1 Engine & Mower Co.
327 East 9th Street
Salt Lake City, Utah 84102

American Electric Ignition Co.
124 N. W. 8th Street
Oklahoma City, Oklahoma 73102

Auto Electric & Carburetor Co.
2625 4th Avenue, S.
P. O. Box 1948
Birmingham, Alabama 35233

Automotive Equipment Service Co.
3117 Holmes Street
Kansas City, Missouri 64109

Bailey's Rebuild Inc.
1325 E. Madison Street
Seattle, Washington 98102

Brown Equipment Distributor Inc.
110 Beech Street
Corydon, Indiana 47112

Bullard Supply
2409 Commerce Street
Houston, Texas 77003

Catto & Putty, Inc.
P. O. Box 2408
510 Soledad Street
San Antonio, Texas 78205

Center Supply Company
6867 New Hampshire Avenue
Takoma Park, Maryland 20012

Charles B. Wright Co.
309 4th Avenue, South
Nashville, Tennessee 37201

W. B. Clements
400 Salem Avenue
Roanoke, Virginia 24016

Morton B. Collins Co.
300 Birnie Avenue
Springfield, Massachusetts 01107

Dixie Sales Company
P. O. Box 1408
327 Battleground Avenue
Greensboro, North Carolina 27402

East Point Cycle & Key Shop
1617 Whiteway
East Point, Georgia 30044

Gamble Distributors
West End Avenue
Carthage, New York 13619

Garden Equipment Co., Inc.
6600 Cherry Avenue
Long Beach, California 90805

Henzler, Inc.
2015 Lemay Ferry Road
St. Louis, Missouri 63125

Frank E. Ives & Son
1101 Lincoln Avenue
Prospect Park, Pennsylvania 19076

J. W. Jewett Co.
981 Folsom Street
San Francisco, California 94107

Kenton Supply
8216 North Denver Avenue
Portland, Oregon 97217

Kimber's Inc.
115 W. Geddes St.
Syracuse, New York 13204

The Lawnmower Shop
1340 El Camino Real
San Carlos, California 94070

Marr Brothers
423 E. Jefferson
Dallas, Texas 75203

Mathews Auto Electric Co.
420 East 2nd Street
Tulsa Oklahoma 74120

McClure Lawn & Garden Supply
1114 Lexington Avenue
Mansfield, Ohio 44907

Memphis Cycle & Supply Co.
421 Monroe Avenue
Memphis Tennessee 38103

Moz-All of Florida, Inc.
365 Greco Avenue
Coral Gables, Florida 33146

National Central, Div. of
Joe Sterling, Inc.
Drawer "D" 687 Seville Rd.
Wadsworth, Ohio 44281

Power Equipment Distributor
36463 So. Gratiot Avenue
Mt. Clemens, Michigan 48043

Parts & Sales Inc.
2101 Industrial Pkwy.
Elkhart, Indiana 46514

Parts & Sales Inc.
335 West St. Charles Road
Villa Park, Illinois 60181

Power Lawn & Garden Equip. Co.
2551-2571 J. F. Kennedy Road
Dubuque, Iowa 52001

Raub Supply Company
James & Mulberry Sts.
Lancaster, Pennsylvania 17604

Radco Distributors
2403 Market Street
P. O. Box 3216
Jacksonville, Florida 32206

Richmond Battery & Ignition
P. O. Box 25369 — 957 Myers St.
Richmond, Virginia 23260

Smith Hardware Company
515 N. George Street
Goldsboro, North Carolina 27530

South Denver Lawn Equip. Co.
527 West Evans
Denver, Colorado 80223

Suhren Engine
8330 Earhart Blvd.
New Orleans, Louisiana 70118

Sutton's Lawn Mower Shop
Route 4, Box 343
North Little Rock, Arkansas 72117

Warner Equipment
7520 Lyndale Avenue, So.
Minneapolis, Minnesota 55423

WARRANTY PARTS AND SERVICE POLICY

The purpose of warranty is to protect the customer from defects in material and workmanship, defects which are not detected at the time of manufacture.

Our aim is to build into our product quality and reliability. Considerable emphasis is placed on quality control in order to assure our customer of satisfactory product performance. To achieve this goal, it is necessary to gain the cooperation of all concerned, MTD, our sales force and our customers.

MTD's responsibility is to build a quality product and to back up that product. MTD must build this quality product at a competitive price. This cannot be achieved without production in quantity. Quantity production is mass production. In mass production it is always possible for undetected defects to be present when the product reaches the customer. Our warranty is extended to assure the customer that any such defects will be corrected.

Use and maintenance are the responsibility of the customer. MTD cannot assume responsibility for conditions over which it has no control. MTD's responsibility does not cover misuse, excessive use, accident neglect, improper maintenance or alterations by unauthorized persons. Satisfactory product performance can only result when a manufacturer provides and backs up a quality product and the customer follows through with proper use and proper maintenance of that product. When both the manufacturer and the customer recognizes and assumes his responsibility, satisfactory product performance and customer satisfaction are assured.